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What the Orchardist Expects When He Rents Bees

By Walter H. Hull
Virginia

WHEN a man has a sizable fortune invested in orchards, and is spending in cold cash each year an amount several times as large as the average man's salary before he gets a cent of return from his crop, he naturally must know quite a good deal about his business. He knows, for one thing, that under certain conditions it pays him to put bees in his orchard. There are three ways he may get them:

He may buy bees and become a beekeeper in his own right.

He may buy "orchard packages," to be more or less abandoned when they have served their purpose.

He may rent bees from an established beekeeper.

Objections to the first plan are that in nine cases out of ten he does not want to become a beekeeper, is not interested in bees except for pollination, and has no time for the work even if he wanted to do it. Also, his locality being good orchard land is probably not the best bee pasture.

The second plan appears to me thoroughly unsound. Orchard packages are expensive. They do not give as good results as established colonies. It is wasteful to destroy them as soon as they have served their purpose; yet if they are not destroyed they are almost sure to be neglected and become a menace to all bees in the neighborhood.

Renting bees has none of these objections. The trouble has been that the orchardist did not always know where he could get them; and sometimes after he had gotten them they were not satisfactory. That, however, was due chiefly to the beekeeper's lack of knowledge and experience in this particular line of work. It was a temporary condition only. In order that beekeepers may be able to give satisfactory service, let us see what it is that the orchardist demands.

First, he wants enough bees to do the work. Government experts have figured that the ideal colony for orchard work should have eleven frames of brood. That would mean a two-story hive with six frames of brood below and five above. A year or two ago the best informed orchard men were demanding a colony of that size. I suppose the reason they stopped demanding it was because they couldn't get it. Few are to be found at that time of year, and, anyway, it costs about twice as much to put a colony of that size into the orchard as the orchardist wants to pay. Most of them are satisfied now with four to five good frames of brood, which means as a matter of course an active queen and a good force of bees.

When colonies do not measure up to this standard it is perfectly feasible to boost them to the required strength with package bees. Figuring one pound of bees to each frame of brood, if you have a colony with the equivalent of two frames of brood a three-pound package of bees will bring it up to a good working strength for the orchard, equal in force to the colony that has five frames of brood, and since fewer bees will be required as nurses there will be a larger force available for the field.

Another thing that the orchardist wants is reasonable assurance that there will be no "trouble." Probably he would not think so much about this if the beekeeper moved the bees on his own truck and did all the loading and unloading himself. But generally the work is not done that way. A truck with large body and high sides, ideal for hauling bees, is part of the necessary equipment of the commercial orchard. They all have them; and at this particular season the trucks are apt to be idle. Therefore, whatever benefit the orchardist can get by hauling the bees himself is clear gain to him. The plan is likely to suit the beekeeper also, for such a truck is not part of his necessary equipment and he seldom has one.

But even when the bees are moved on the beekeeper's truck the orchardist has to go around to show him where to put them. To expedite the work, it is customary also for him to furnish a man, either to drive the truck or help with the unloading. In order that these men may do their parts, it is necessary that the hives be tight and entrances securely closed. This means factory-made hives, well painted and raised from the ground to avoid rot. It is the bottom boards that are most likely to cause trouble. Often one that looks perfectly sound will have a bad place underneath. To be on the safe side, tip the hive back after you have it fastened together and make sure it is sound.

Occasionally the hive body will be rotten in spots so that the staples will pull out when the hive is lifted. Three staples, one on each side near the front and one in the middle at the back, will hold the parts together so long as none pull out. It is better to use four, and if the wood is unsound, put in a couple more for luck.

For closing entrances I use ordinary galvanized wire screen, cut 2½ to 3 inches in width and as long as the entrance is wide. Bend the strips into a wide V and push them in at the entrance until they come snug all around. They should be cut carefully as to length. If too long, the wire will buckle. If they are too short, of course there will be an open space at the end, which, however, is easily remedied by using two pieces instead of one, pulling each piece out to the edge and allowing them to lap several inches in the middle. I gen-

erally cut a few of the strips in two after I get them made, so as to have a supply of these extra pieces for entrances that are not standard width.

Supply houses put out screens bent in this manner, but with an extra lip to be tacked along the front of the hive. I have never found it necessary to tack them for moving on a truck. It pays to put them in carefully, even looking in at each entrance to see that the edge of the wire is close to the wood all around, tipping the hive back if necessary and using a flashlight if it is too dark to see without one; but when properly put in they will not come out nor let any bees out.

Certainly tacks would be an unmitigated nuisance in the orchard where time is precious, and hives generally must be opened as fast as they are unloaded. After setting the hive in place you get behind it and reach around in front. With one quick, smooth motion, you pull the screen out and lay it beside the hive. Then you get out of the way before the bees spot you. It calls for good footwork, but is better than wearing a veil or carrying a smoker.

The third requirement of the orchardist is that the work be done in a competent, business-like manner. He is paying you for the service. In accepting it you put yourself in the professional class, and the man who hires you has a right to expect the work to be done with some degree of professional smoothness and dispatch.

In one case that I heard about, the bees were loaded without closing the entrances at all, merely covering the whole load with a sheet. No doubt they moved well enough, although a lot of bees may have been lost on the road by drifting clear of the truck. The trouble came when the sheet was taken off and many of the bees took to the air. To say the least, that cloud of flying bees interfered with proper placing of the hives in the orchard. On that score alone the orchardist had ample ground for protest.

But the orchardist has other reasons for demanding competent service. A load of bees always attracts attention on the road. Whenever it stops, people will inquire where it is going, and why. A certain amount of publicity is inevitable. Whether this publicity will be favorable or unfavorable depends almost entirely on how the job is handled. You cannot always avoid leaving a few bees behind when you stop for a traffic light, or at a restaurant for lunch, or at the city office of the fruit company; but it stands to reason that half a dozen strays will cause less unfavorable comment than half a thousand.

Finally, the orchardist will demand promptness. He realizes that you have other orchards to attend to, and is willing to give you a couple of days' leeway—**if necessary.** But he is himself working on a very definite schedule, and woe to the orchard foreman who gets farther behind his schedule than weather conditions warrant.

Sometimes when closing entrances in a big orchard I have had for company the roar of a giant caterpillar lumbering along the rows in the dead of night, its lights set at a crazy angle to illuminate, not the path of the tractor but the path of the big side-draft disk that at every trip turned under a rod-wide strip of rye as high as my head. The point is that men who work day and night to meet the demands of their job naturally expect, and I believe are entitled to, full cooperation from those who work with them.

A square deal as to bees; good equipment, efficient service and reasonable cooperation—these are some of the things the orchardist expects when he rents bees from you. If you can meet his requirements, there is no reason why you should not get your share of this interesting and more or less profitable work.

Beekeeping Supply Dealers and Manufacturers Being Listed

A mimeographed list, E-297, giving the names of dealers in bee supplies, queens, package bees, and colonies, was compiled in March, 1932, by the Bee Culture Laboratory, Washington, D. C., in order to give prompt and impartial service to the many requests for information of this sort.

A revision of this list is now being made in order to bring the information up to date. All who desire to be included on the list again this year, or who wish to be entered for the first time, should send their names and addresses, together with information as to what they handle, to the Bee Culture Laboratory, United States Department of Agriculture, Washington, D. C. Queen breeders should state the race of bees.

The list will be made up in March and will be used merely for the information of correspondents; no endorsement as to quality or price will be implied.

Bee Culture Laboratory,
U. S. Dept. of Agriculture,
Washington, D. C.

In Unity There Is Strength

The past is but a memory. We must look to the future. Let's keep faith in the bees so as to keep up our enthusiasm, without which we are sure to fall into decay.

The depression, while serious, deplorable and a severe jolt to our aspirations, has not been without it's blessings. Fortunately it has taught us that money has only a monetary value, and there is much to be desired in preference to it.

Our industry provides us employment which is necessary to our happiness, the pursuit of which makes life interesting and worth while. By working together we can accomplish the most toward putting beekeeping in its rightful place among commercial enterprises.

The American Honey Institute lights the way for unbiased and unbridled cooperation just as the bees themselves would have it done, "for the common good of all." Let us support it loyally.

Resolve in 1933 to keep better bees, produce and pack higher quality honey, and by helping the Institute to function, be enabled to market it more profitably.

N. C. Jensen,
Crawford, Miss.

Another Bee Book

"The Joys of Beekeeping" is the title of a new book by M. G. Kennedy Bell, which comes from England. It is a cloth-bound book of 190 pages and few illustrations. It is a book about bees rather than a guide to beekeeping practice. The author is evidently an enthusiast who finds much of interest with the bees. The subject matter is not particularly orginal. The printing is good and the arrangement is attractive. It is published by Herbert Jenkins of London. It can be obtained from Burtt & Son, Gloucester, England, at 3s 6d, or slightly less than one dollar of U. S. money.

Peanut Cookies

1 cup brown sugar
¾ cup lard
1 cup honey
2 eggs
1 teaspoon vanilla
½ cup sourcream
½ teaspoon salt
1 teaspoon soda
1 cup chopped peanuts
3 cups flour

C. J. Oldenburg, Minnesota.

Honey Nut Cookies

1 cup honey
½ cup butter
2 eggs
1½ cups flour
1 teaspoon baking powder
Pinch nutmeg
¼ tsp. cinnamon and cloves
1 cup chopped raisins
1 cup nuts

Drop on greased pans and bake until golden brown.

C. J. Oldenburg, Minnesota.

National Convention Week

Meetings of Allied Industries—Hotel Statler, St. Louis, February 27-March 1—Most Important Meetings of the Entire Year

The annual meeting of the American Honey Producers' League and American Honey Institute will be an exchange of thoughts, ideas, programs to aid beekeepers. Such an exchange of thoughts is most helpful to the individual and organization alike. The greater the attendance, the larger number of thoughts to be exchanged. We hope you are planning to attend.

Do come—take the train, fly if you can afford it, drive your own car, ride the blinds, or thumb your way. Just so you get there. It's going to be worth every effort you make to get there.

The St. Louis committee is making wonderful preparation. Mr. Charles Denny, chairman, St. Louis committee, writes that arrangements have been made for a model kitchen in which to dramatize work of Institute Testing Kitchen as well as feature Institute display. Other exhibits of honey are being planned by Missouri beekeepers. Honey demonstrations will also be given in the auditorium of the Famous-Barr Department Store. This auditorium has a seating capacity of about one thousand.

Come and see samples of jelly made with different honeys, fruits and vegetables canned with honey the tin can way, the effect of high and low oven temperatures on honey-baked items. You can't all visit the Institute Testing Kitchen at Madison, and so through the excellent arrangements made by the St. Louis committee a part of the Testing Kitchen and its program is being brought to you.

The combination League and Institute program offers you talks on everything from races of bees to famous American beekeepers. Many phases of honey marketing will be discussed. The Apiary Inspectors of America are gathering at this time, too. ARE YOU COMING?

Monday, February 27—Meeting of American Honey Institute, 9 a. m., 2 p. m., 7 p. m. Report of secretary-treasurer and committees. Business and open forum.

Tuesday, February 28—American Honey Producers' League. Business meeting and reports. In afternoon the following speakers and subjects: "Needs of the Beekeeping Industry," Dr. K. C. Sullivan, Missouri; "Pointers on Marketing Honey," O. W. Hickel, St. Louis; "Changes in Market Trends and Buying Habits of the Housewife," Miss Annette M. Snapper, Pabst Corporation; "Institutional Possibilities for Using Honey," Miss Mary Barber, Kellogg Company; "Honey for Health," Dr. William C. Wilson, Missouri; "Demonstrations Sell Honey," Mrs. Malitta F. Jensen, American Honey Institute.

4.30 p. m.—Meeting of Missouri State Association.

6:30 p. m.—Annual banquet.

Wednesday, March 1—Business meeting. Reports of committees; election of officers. "Races of Bees," J. F. Diemer, Liberty, Missouri; "Some Famous American Beekeepers," Frank C. Pellett, American Bee Journal; "Fads and Fancies," E. R. Root, Gleanings in Bee Culture.

1:15 p. m.—Meeting of Apiary Inspectors of America. Sessions open and the public is invited. Anyone wishing to present a paper should correspond with the secretary, F. B. Paddock, Ames, Iowa. Such questions will be discussed as uniform laws, regulations, and certification.

Morley Pettit Married

The announcement of the marriage of Mr. Morley Pettit, prominent Canadian beekeeper, to Miss Louise Risdon, of Toronto, on January 7, came as a surprise to his wide circle of friends. It was generally agreed that Morley was a confirmed bachelor. We extend our congratulations.

Change in California Shipping Firm

We are advised of a change in the firm of Hamilton, Wallace & Bryant whereby Messrs. L. M. Bryant and T. W. Cookinham become sole owners, retaining the old name of Hamilton, Wallace & Bryant. Messrs. Roth Hamilton and his son have withdrawn from the company.

New Officers in Maryland

The Maryland State Beekeepers' Association held its twenty-fourth annual meeting on January 4, 1933, at the Lord Baltimore Hotel in Baltimore. The beekeepers' association is one of several farm organizations affiliated with the Maryland Agricultural Society-Federal Farm Bureau and holds its annual meeting in conjunction with meetings of the other members of the federation.

The meeting was called to order by Vice-President William M. Aman, of Washington, in the absence of President A. Howard Johnson, of Centerville, who has been ill for several months. President Johnson's annual address was read by Dr. E. N. Cory.

The report of the year's extension activities in beekeeping was given by George J. Abrams, specialist in apiculture, University of Maryland. The program continued with an interesting talk by Harold L. Kelly, Forest Glen, about his varied experiences in beekeeping.

Dr. C. E. Burnside, of the U. S. Bee Culture Laboratory (a great favorite with the Maryland beekeepers), addressed the members in regard to several of the lesser known and understood bee diseases. There followed a showing of the excellent new U. S. D. A. movie, entitled "The Realm of the Honeybee."

Election of officers for the new year followed. Mr. Harold L. Kelly, Forest Glen, was elected president; Mr. S. G. Crocker, Jr., Baltimore, vice-president; and Dr. E. N. Cory, College Park, was reelected secretary-treasurer.

Wisconsin Essay Contest Closes

The Wisconsin Beekeepers' Association, through its Educational Committee and with the aid of American Honey Institute, just finished a contest open to members of the Federated Women's Clubs. It was an essay contest, the subject being "Honey, Our Oldest Sweet."

Four prizes were offered—$10.00, $5.00, $3.00, and $2.00—the money to go to the club of which the winner was a member. In addition, each prize winner received for herself for first prize $10.00; second, $5.00; third, $3.00, and fourth, $2.00.

The following were prize winners in the above contest: First, Mrs. Lawrence Wustrack, Oakfield; second, Mrs. Josephine Case White, Eldorado; third, Mrs. M. M. Flaherty, Campbellsport; fourth, Mrs. Robert Morgan, Campbellsport.

Clara G. Jones, Wisconsin.

Saxton Becomes President of Yakima Association

G. W. B. Saxton, of Tietonview, Washington, is the new president of the Yakima County Beekeepers' Association for 1933. The other officers are: Vice-president, J. B. Espey; secretary-treasurer, J. E. Steffens; and trustee for three years, Curtis H. Shader.

I. L. Neill, Washington.

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The Debt We Owe

Those of the present day little realize how much they are indebted to the pioneers of another generation who laid the foundations for industry. Those who first engaged in commercial queen-rearing had so much grief the business of the present day is a bed of roses in comparison. Beekeeping equipment was crude and few beekeepers understood how to manage the various manipulations successfully.

When new queens were received they would very often be lost in introduction. The bees finding themselves thus queenless would raise another from their own brood. The beekeeper, not knowing what had happened, then blamed the shipper for fraud because he found a black queen at the head of the colony to which he had given the purchased Italian. Shipping by express was slow and unsatisfactory as well as expensive. The pioneers spent large sums of money, gave much time and unlimited patience to working out the details of the practice which is now so generally understood.

More recently the shippers of live bees in packages went through a similar period of uncertainty and difficulty. So it has been with every advance made. Those who have benefited most have not been the ones who made the experiments and perfected the methods.

Better Returns

In the Bee World for January, 1875, Adam Grimm, of Jefferson, Wisconsin, is credited with being one of the world's most extensive honey producers. His crop for the season is given as 25,919 pounds from 1,158 colonies. The beekeeper with such a crop from so many bees in these times half a century later would hardly be credited as unusual. Rather it would be expected that several times that amount of honey would be secured in a normal season. A few days ago a young man called at this office who reported a crop of five carloads of honey from seven hundred hives the past season. That would be about five times the amount of Grimm's crop from a much smaller number of bees.

Large crops are now produced because of better methods, better equipment, better strains of bees and better bee pasture. That we are making definite progress toward larger yields can hardly be doubted. In fact, one need not be familiar with beekeeping for a long period to remember when half the present day production was regarded as a satisfactory return.

Renewed Interest

A mid-western university recently received an enquiry from an eastern baker as to where a carload of white honey could be found for immediate use. The baking trade is making use of large quantities of honey at present and this demand is taking much of the surplus which might otherwise accumulate in the markets during this time of low prices. Low prices always bring new outlets for a product, but the interest of the bakers has largely been stimulated through the efforts of the Honey Institute, and it is to be hoped that many of these customers will continue to use it after prices begin to rise again.

Not only are new buyers for honey appearing in the market, but many newcomers are to be found in the ranks of the producers. These are mostly beginners who are starting cautiously with only a few colonies in the hope of adding a new interest to life or increasing their income. A good attendance and much interest in the winter short courses is reported from the universities. Renewed interest in any industry usually indicates that better days are ahead. There is something about the enthusiasm of beginners which serves to stimulate any enterprise and make for its increased prosperity.

Death from Bee Stings

Cases of serious illness or death from bee stings are very rare indeed. The fact that such a case does occasionally occur causes widespread comment. In the January Bee World a physician describes such a case. He states that in his opinion the unusual effect was produced as a result of the personal hypersensitiveness of the victim to the bee's venom. Such individual idiosyncrasy is not uncommon and may apply to many common things. It is stated that many persons are thus sensitive to certain foods. Strawberries cannot be eaten by some people without causing much discomfort, which at times may be serious.

The pain of the bee sting is sufficient to make those not well acquainted with the insects very much afraid. If it were not for the fear of stings, bees would be much more generally kept. Some have said that it is only the fear of stings that prevents beekeeping from becoming so common as to make the product of little value.

Are People Getting Honey Conscious?

The latest issue of the Country Gentleman contains a full-page feature article by a well known writer on "Home-made Breads." Two of the principal breads have in their ingredients "two tablespoonfuls of honey." These are the white and whole wheat breads.

The Harrisburg (Pa.) "Patriot," in its writeup of the annual state farm show, says that everything was exhibited for women, from "honey and cake to house dresses and hooked rugs."

A solicitation recently by a local beekeeper of an independent chain of groceries placed twenty cases of comb honey where none or little had been previously handled.

All of which leads us to believe, first, that the population is becoming "honey conscious," and surely we can give the American Honey Institute a lot of credit for it.

In the second place, unless we follow the lead given by a receptive market, and actually place the honey right there for the consumer to use, we are going to lose our golden opportunity. Sporadic sales at the close of the honey season won't do. We must keep the market supplied. If we do that the year round it will not be a case of over supply, but a case of raising more honey.

This has been said before. It is more than ever true today.

Watch the Stores

January, here in the mid-west has been unusually mild. There have been frequent flights and because of this unusual winter activity, more than the normal amount of stores have been used. Under such conditions brood rearing is likely to be started very early. Colonies without abundant stores are likely to be short and it is to be expected that more than the usual amount of spring feeding will be necessary. Because of the mild weather bees with plenty of honey are likely to come through in good condition but the beekeeper who does not watch may find himself with dead colonies because of starvation.

Competition

Occasionally someone speaks of overproduction of honey. It is true enough that honey is of slow sale in some markets. The fact, however, is that the real competitor for honey, is not honey from other localities but sugar, corn syrup, candy and numerous confections which satisfy the public appetite for sweets. To reduce the output of honey would make no appreciable difference in the price. So many sweets are now produced in great quantity by factory methods that the beekeeper must be wide awake to keep the public conscious of honey at all.

More Farm "Relief"

The proposed allotment plan for farm relief is very unfair in that no account is taken of the little fellow like the beekeeper. He is left to look out for himself. **Politicians are interested in numbers of votes.** When they give a bounty to the grower of wheat, however, as they propose to do, and then pass on the cost to the laborer who buys the bread, they will raise such a storm as they little anticipate.

If we are to have special support for agriculture it should serve all alike and not be confined to the growers of wheat, cotton, hogs and tobacco because there are larger numbers of them. How about the fruit growers, the market gardeners, the beekeepers, and the growers of oats, rye and corn? Is their distress any less real than that of the others?

Fortunately beekeepers are a self-reliant lot and are inclined to muddle through on their own account. But we do object to having to help pay the bill for the other fellows while digging out of our own mire.

That Dark Honey

The announcement that Doctor Schuette, of the University of Wisconsin, has found that darker honeys contain more minerals than lighter honeys may prove to be important. He is reported as saying that he found iron, manganese and traces of copper in the dark honey and that these minute quantities might prove to have an important influence upon the body.

It is very fortunate for the industry that reputable scientists are at last making a study of honey. When their findings become known it is quite possible that a new demand for our product may result in a larger measure of prosperity for honey producers.

Those southern honey producers who make claims that their dark honey is superior to our northern white honey may have a basis of truth. If so, we wish them well. Such a statement from a man like Doctor Schuette is worthy of attention.

It is to be hoped that this investigation may be continued until the influence of honey in the human diet is fully understood. Great progress has been made of late in the field of nutrition, and the announcement of new discoveries is making radical changes in the demand for particular food products.

Advertise

An Iowa beekeeper writes to tell us that honey still sells better than at any time in the past and that for the first time in his experience the demand continues right on through the holidays. He sends along copies of small ads which he uses in the local newspaper. Since many beekeepers report a poor demand, we are wondering whether his well-placed advertising may not be esponsible for his success where others complain.

The numerous radio talks, newspaper articles, etc., which attract public interest in honey should make it easier to sell our product if we follow up this general publicity by judicious advertising. The beekeeper cannot afford large expenditure in advertising at current prices for his product, but he should keep his neighbors informed that he has honey for sale.

Good Winter for Bees

The kind of winter we have had thus far promises well for bees wintering out of doors. While there has been some unusually severe weather here in the Middle West, it has not been prolonged for sufficiently long periods to be dangerous. So many bees are wintered outside on Langstroth combs that winter losses are heavy in severe seasons. This usually is the result of the consumption of all the stores in the combs on which the bees are clustered when the weather is too cold for them to move over to a fresh supply of food.

More than fifty years ago, in September 1882, in this magazine, Eugene Secor wrote: "The Langstroth hive is too shallow for outdoor wintering in this climate (Iowa)." Since that time many beekeepers who winter out of doors have come to use two-story hives, which partially overcomes the difficulty.

One of the best arguments for the large hive is that the deep frame offers far greater safety in severe winters.

Changing Bee Pasture

The beekeeper is strangely dependent upon the activities of his neighbors. A change in the farm operations of a neighborhood may make a good bee location of one which has been poor, or it may do the opposite. Our attention has been called to numerous cases of this kind. Several bee men have reported to us that in localities where beekeeping was formerly profitable they can no longer get satisfactory crops. In some neighborhoods the large-scale planting of apple orchards and the consequent spraying put the beekeeper out of business.

In parts of Colorado the change from alfalfa to sugar beets or other crops resulted in such a change as to compel many bekeepers to seek new locations. On the other hand the planting of sweet clover where it had previously been a stranger has made some of the finest beekeeping territory ever known. Thus the producing areas are constantly changing. A review of the bee magazines for the past fifty years shows a rise and fall of honey production which must be considered in making a large-scale investment. Some bee men living in the West have said to the writer that they questioned the wisdom of investing in buildings and equipment which cannot be moved.

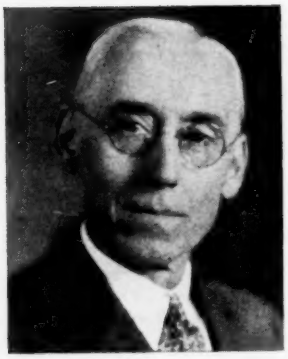
In west Texas, where honey from desert shrubs was shipped in carloads back in pre-war days, little honey is now produced. The clearing of the land and planting of farm crops destroyed the bee pasture.

The growing of a special crop often provides unusual bee pasture for a few years until market demands result in the substitution of some other crop. The large-scale production of melons is an example of this kind. Cucumbers likewise sometimes provide forage for a fortunate beekeeper whose bees are within reach. Such crops seldom continue to be grown extensively in the same community for long periods.

Legislation

The beekeepers are about the only group of producers who do not seem to be asking that the government do something for them. All kinds of plans are proposed to raise prices of farm products. The fact that nearly every important agricultural country has tried some such experiment, with failure, does not stop the agitation. Such efforts can only prolong the depression. If the Government will cut down expenses, reduce taxes and remove some of the burdensome restraints of trade, things will soon be better. It seems strange that we cannot learn anything except by our own bitter experience.

It is always those commodities with which government is tinkering that get into the worst situation. Cotton, coffee, rubber, and wheat have been the object of solicitude on the part of several governments, and in every case conditions have grown steadily worse until the remedy was exhausted. Let us hope that there will be no attempt on the part of the Government to interfere with the beekeeper.



DR. LLOYD R. WATSON

As I See the Old Bee

By Dr. Lloyd R. Watson
New York

Here speaks Doctor Watson, who has brought to beekeeping the gift of controlled mating. In three splendid articles he tells of his vision of a new bee. This first one beautifully describes our old playmate -- the honeybee of the thousand of years that are past. Do you agree with him? What shall her future be? He will tell us what he thinks about that in the succeeding two articles.

A UNIQUE insect is the honeybee — this independent, industrious, waspish little aviator, with its unparalleled record rolled up of three thousand years of undisputed popularity with man. She has had no competitor. There never was a substitute for the honeybee and there probably never will be any except her own rebuilt and regenerated progeny.

The honeybee as we know her has had her day. Her story is all but ended and the morning is now actually purpling for a new honeybee. It would in the nature of things be so. The way of progress in this matter has been unhurried, but it is nevertheless certain. Things serve their time and then are folded away to make room for new and better ones. So time and intelligence and necessity have ordained regarding the bee, and it would be appropriate now to lay away a few in the museum of antiquated biology to be preserved as specimens to remind our posterity of the bee with which their forefathers worked.

Three thousand years, and more, the honeybee has been "kept" by man for whatever surplus honey it might produce, and snugly does it hold its place among animals useful to man. Long ago we learned that we cannot do without it, and constantly we are at our wits' end to know what to do with it. Of course we love the dear thing! Our fathers loved it as did their fathers before them, and theirs, and again theirs, and on back until history grows dim and misty.

How could we not love an organism which has so often stood between us and death from hunger? Except for the benevolence of the honeybee the most of us would not to this day know the taste of earth's most heavenly confection. Not only this, but except for the unwittingly lavish toil of the bee many a broad acre of bloom on which the tiller of the soil waits for food for himself, his family and his herds would wither to seedless autumn.

The honeybee is a stickler for form and etiquette, which is usually ignored only by those who understand her the best and by those who understand her the least. Who but the apicultural veteran, or the beginner with bees, would venture to mess with the private affairs of a thrifty colony unsupported by the potential backing of a modern smoker? Fortunately, when things are going well steel plate is not required, but veiling for the head and pant guards for the ankles—defensive clothing from head to foot — are so needful and so universally used that they are everywhere regarded as identification marks of a beekeeper.

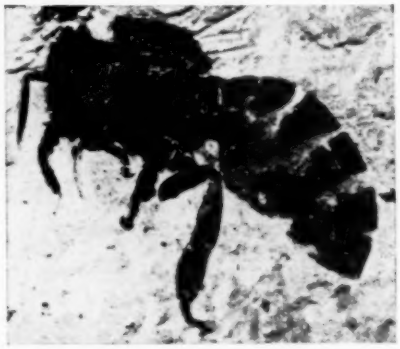
How much the honeybee contributes to the physical epression of Providence, indeed to what extent the honeybee **is** personified Providence, can be appreciated only by those who have eyes to see and ears to hear.

For three thousand years, perhaps more, men and women who have depended upon the products of the hive in part or in whole for their subsistence have talked together about their mutual problem with bees—**the problem of securing more and better honey with the outlay of less and less work.**

This problem has been analytically discussed over the open hive, along the public highway and in heated assemblies. Aristotle did it, and we are doing it yet. The historian, listening in through these thirty centuries, informs us in profound seriousness that more than three-fourths of this discussion—more than nine-tenths of it—yes, more than that—has been devoted to the elaboration of methods of manipulation, hiving, equipment, wintering, advertising and marketing, and all that ilk. Now manipulation, hiving, equipment and wintering are aspects of environment. They are all pertinent and essential considerations in the successful management of bees for profit, but may not the question be fairly asked whether environment is the sole biological factor determining the end of all beekeeping?

A principle laid down by contemporary biology states that all of the qualities governing both the form and the functions of plants and animals, be they good, bad or indifferent to the conveniences of man, are determined by both of two factors working together upon the organism, viz.: (1) heredity, and (2) environment. It is evident, then, that in our efforts to elevate the status of our profession we may employ one or the other or both of these means. It is a singular and lamentable fact that down to the present time, through ages on end since beekeeping history began, nearly all efforts to elevate the profession to scientific equality with other agricultural professions have been confined to the second class, viz., environment, with only slight attention to the heredity of the bees themselves.

But this one-sided development, although admittedly possessing apologetical aspects, has been necessitated not so much by lack of desire for better bees as by physical inability to breed better bees. The cause of this vexatious dilemma lies within the queenbee herself and in her determination to carry out her nuptials on the wing, far out of the control of man. This untamed breeding habit of the queen constitutes a specific



A ghost bee from a million-year distance. A fossil bee from the Tertiary age. It might live in a hive of 1933, as it is so like our present bee.

difference between honeybees and all other animals used for domestication.

Selection of the parents which most nearly approach to an ideal type—i. e., line breeding—has been possible in bees only as regards the female. This has been assiduously practiced for long periods of time, but experience amply teaches that **nothing short of strict selection of both the male and the female ancestry can yield satisfactory hereditary results.** Furthermore, the small size of the bee as compared with that of other farm animals, and the habit of the beekeeper of seeing his bees in mass rather than individually, has operated to prevent the discovery and segregation of slight, though possibly important, variations from type. However excusable the beekeeping profession may be for the belated condition in which it finds itself through inability to select the drones which shall mate our queens, it may be well to face the facts and make a new canvass of our situation.

Let it first be recognized that three thousand years of combined effort of all the beekeepers of all countries working independently, and working cooperatively, with the one-handled tool of female selection have not availed sufficient change in the honeybee, either in form or in function, to enable us to discover any certain difference. If the Roman poet Virgil could live again, and visit representative apiaries in Italy and America today, he would presumably notice so little change in the bees he sees that he would hardly guess that our stocks are two thousand years removed from his that he sang about in the Fourth Book of the Georgics.

While we of the twentieth century are still husbanding the practically unchanged bees of Virgil and Aristotle, our poultry friends have wrought such profound improvements in the domestic fowl that only by a lively stretch of the imagination can we appreciate that the little wild jungle fowl of Asia bears the slightest ancestral relation to the modern food machines known to us as Leghorns, Plymouth Rocks, and Orpingtons.

Barely fifty years ago a thrifty farmer of my childhood recollection established a poultry ranch for the purpose of testing whether there could be a respectable living made from egg and broiler production. Nothing short of the best fowl could tempt his keen judgment. He stocked his farm with Silver-spangled Hamburgs. They flourished under his study and attention, and that farmer was hugely in demand at poultry assemblies everywhere to tell about his plant and his manipulations. This was less than fifty years ago (or was it a hundred?) Anyhow, progress in developing economically superior varieties of fowls has been so rapid that relatively it makes little difference which date we use. A fowl unimproved for fifty years may be just about as much out of date as a fowl one hundred or five hundred years old.

The greatest development of general purpose and of special purpose fowls has come about during the past twenty or thirty years, or since the more general awakening of animal breeders to a fertile appreciation of the tremendous breeding possibilities of their cultures. Let it be recalled here that the excellency of certain highly developed breeds of fowls, until but recently undreamed of, has been achieved not by attention alone to matters of environment, important as they may be, but far more and always has attention been riveted **upon the factors of heredity.**

Credit is due to many beekeepers of vision for the persistent and ingenuous efforts they have made to improve the heredity of their bees by using the progeny of the best mothers and depending upon isolation from surrounding undesirable bees to have their young queens mated by their brothers or by desirable drones in the same apiary. Unfortunately, however, any success claimed by this method has been uniformly slow and uncertain, and so-called strains developed in this way are usually found to be so heterozygous (unstable hybrid—not true to type) for the characters aimed at that when they are released to the commercial world their course is short and disappointing.

It is more than time to write **finis** to this chapter of historical dejection and scientific chagrin, but before closing let us fully understand that the only path of deliverance out of this bee-breeding dilemma lies by the way of **positively controlled mating of the queen**—positive selection of the queen (which has never been lacking), and positive selection of the drone, which is now possible under laboratory conditions. A new bee is in the offing. How will she look, and what shall we see in the next twenty-five years. This answer still lies hid in the lockers of science. Nature releases her secrets only reluctantly after long, patient, intelligent wooing. But let us watch the eastern sky, for scientists declare that a new day in beekeeping is about to begin.

"Honey Sunday" Exposition

I noticed, in your September issue, you published pictures of various honey expositions. I am interested in them myself. In the latter part of September last year I had such an exposition which occurred on the day we call "Honey Sunday."

I had the exposition photographed. I am sending you one of these photographs and you will notice that between the jars of honey there are cookies in the shape of various animals. These cookies are made partly of honey. The words at the top of the picture you may not be able to understand, as they are written in the Slovene language. Translated in English, they are: "Very healthy honey from the Franciscan Farm."

Rev. John Ferlin,
St. Mary's Seminary,
Lemont, Illinois.

Honey Cough Medicine

Heat three lemons in oven until soft, then extract juice. Mix with one cup honey. Take two teaspoons every two hours.

In Regard to "Leaving Those Packages Alone"

By Alfred H. Pering
Florida

UNDER the title "Leave Those Packages Alone," on page 395 for October, Kennith Hawkins says: "Producers who buy package bees from the South can eliminate 85 per cent of the loss of queens by subsequent supersedure if they will let the packages alone long enough after the queens have been released."

I believe Mr. Hawkins is just about 100 per cent right, but just what should be done to eliminate the other 15 per cent of loss? I do not know. I will give a bit of my experience in receiving and handling package bees with their queens, and some theory. I am not a queen breeder nor a shipper of package bees. I have never been an extensive buyer of packages with queens from the South. While I kept bees in the North, I received enough packages to experience the annoyances of losses about which Mr. Hawkins speaks.

Not until I came south did I give much thought to the problem of finding the cause of these losses. It may seem a bit strange to the reader that a southern beekeeper should find it desirable or profitable to buy package bees and queens from a southern breeder, but in a limited way I have found it profitable to do so.

In the North it is very annoying and exasperating to receive a package of bees with a queen, apparently successfully hive it, upon first examination to find the queen seemingly well received by the bees and laying her quota of eggs, then later, just before or even during the main honeyflow, to discover supersedure going on. Loss of the honey crop for that year is almost sure to follow.

Down in Florida, however, the honeyflows come more often and are varied in their intensity and there is often time remaining after supersedure to get a honey crop during the same year. But that fact is not a good reason for not eliminating supersedure if it can be done.

I am not so sure that I have found the remedy. I have not had experience enough yet to say that I am sure, but in the few cases in which I have had a chance to make experiments and observations I am led to believe that I am somewhere near the right track. I intended to experiment further and then report, if my efforts to discover the cause of these losses strengthened my convictions, but now that Mr. Hawkins has given his knowledge, born of experience, I will not wait longer to offer what little I have, with the hope that it may save some of the losses this year.

My theory and experience is this: **Do not let the bees that are to be shipped in packages have a chance to feel that they are queenless.** Bees may or may not think or have any reasoning powers. I do not want to introduce that question, but do not let those package bees ever become conscious that they are queenless, nor, if possible, that their queen was ever not their own.

How to do that will become the problem of the shipper. If I were a shipper I am egotistical enough to believe I could devise a way by which that could be managed. One suggestion is to have the queen ready to insert into the package immediately after the bees are shaken in. I would have the cage in which the queen was to travel so made that the bees would and could easily know that there was a queen present at all times, even though the queen was not nor ever had been their own queen.

If nuclei or small colonies could be so built up that when the queens that mated and began laying in that small colony were shaken into the package and shipped with the bees from the colony, I would expect that queen not to be superseded.

This queen, if the shipper or purchaser so desired, could be caged enroute, but bees should never get to thinking that they have no queen. If they do, it is their instinct to set about to rear one of their own the first opportunity they get, and that opportunity comes when they get over their fright and confusion and when the queen which came with them begins to lay and larval food is being produced in sufficient abundance to rear a queen of their own.

If package bees are to be taken from a full colony and the queen from a mating hive, then cage the queen or otherwise prepare her for placing in the package, but first allow her and her attendant bees to acquire the odor of the colony from which the package bees are taken, and do not allow the bees to realize they are at any time without a queen.

I arrived at these conclusions after uniting a large number of bees that were queenless to a smaller number of bees with a queen. The uniting was successful, but shortly after the bees settled to work the queen began a more rapid laying, supersedure started and I stopped it only by regular and continuous removal of the queen-cells until time enough for most all, if not all, of the old bees to die and the new ones to take their place that had never known of queenlessness. The queen was not an old queen or a failing queen, as she continued to head a good colony that produced its share of the honey crop.

At another time I received some package bees from a nearby southern breeder. Two of them began supersedure almost at the same time soon after getting back to work and the queens laying well. I was especially anxious to keep these few queens to rear enough satisfactory drones so the whole neighborhood's conglomeration of crosses would meet the virgins that might come to my drones for mating. I stopped supersedure in their cases as I had before, by removing the queen-cells until the old bees got too old to carry on, or else they gave it up for some other reason. I then began to conclude that bees, once becoming conscious of queenlessness, may never get over the effects of it and so long as they live, and have the ability, they want to and will rear a queen of their own if allowed to do so.

When Mr. Hawkins gave us his findings I felt more convinced that perhaps I was on the right track and that there was a possibility that the 85 per cent package bees had, either by design or purposely never been allowed to ever feel that they were in the least degree in a queenless condition, and no trouble followed, and that perhaps the 15 per cent that gave trouble had in some way felt themselves to be queenless, even for only a very short time.

I do not mean to convey the impression that opening of the hive too soon after introducing a queen, and the consequent disturbance, has nothing to do with it. Very far from it. I think the colony never should be disturbed in the least, and I very often never disturb the colony at all until after the new bees appear. I have written something before this of how I introduced queens, using the shipping cage inserted in a slot cut in the queen excluder and leaving everything alone indefinitely. (See August, 1932, page 326.)

As Mr. Hawkins' article appeared in the October number and we yet had more summer weather down here, I thought I would test out my theory. So I ordered a couple of untested queens of a nearby breeder, made up a couple of what would have ordinarily been package bees for shipment from my own yard. I kept one of these queenless for an hour and another for half an hour. These two queens were received through the mail, wings clipped.

Today (December 6) I gave them their first examination, as my patience would not wait any longer. Both clipped queens had gone; new ones in their places. I regretted that I had not tried a made-up package for comparison and not allowed it

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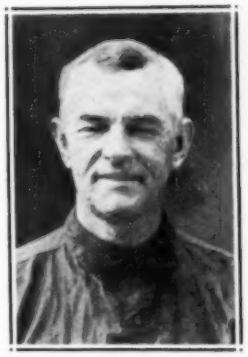
Advanced Methods of Queen-Rearing

By Jay Smith
Indiana

Advanced methods -- just how far will that phrase, proven in practice, take our little industry in the next few years? Jay Smith will tell us in three articles, of which this is the first, what he has learned by experiment in his queen rearing practices.



JAY SMITH

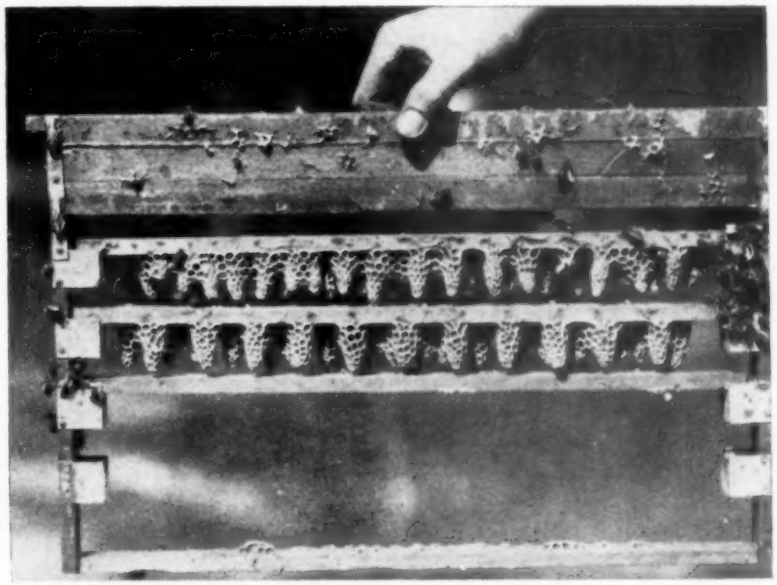
QUEEN-REARING is an old subject, but the methods used by the progressive queen breeder are ever new. In queen-rearing two things are always sought: (1) to rear the best queens possible, and (2) to do it with the least expense.

Rearing Vigorous, Long-Lived Queens

The secret of securing vigorous, long-lived queens (if there be any secret) is to perfect the technique so that the larvæ are swimming in bee milk from the time they are hatched up to the time they are sealed. The queen-cells must be incubated by the bees and not surrounded by any artificial protector or nursery cage. The virgin must emerge among well-fed bees so she will receive the best of care, so she will mature and mate early and become a strong, long-lived queen.

This is not difficult where the honey producer wishes to rear a few queens, when conditions are just right; but to produce those well-fed queens in quantities throughout the entire season, in early spring before the weather is settled, during a heavy honeyflow, during a dearth of pasture when robbers are bad—that is quite another story. In natural cell building during swarming, you will invariably find a quantity of dried-up bee milk left in the cell after the virgin has emerged. Someone at once says, "That is merely a surplus of food and is in no way beneficial to the queen." Are you sure? I am not. As Mark Twain would have the miner say, "Nature never fires blank cartridges."

Years ago, when I allowed virgins to emerge in nursery cages I observed that the virgin turned up her royal nose at the candy I placed in the cage for her to eat and proceeded to eat this useless (?) dried-up milk. Many times, due to inferior methods of rearing queens, there was no dried-up milk left in the cells. In such cases the virgins gnawed holes in the bottoms of the cells, evidently trying to find some dried-up milk. At any rate I am willing to believe that old Mother Nature knows her stuff, and I shall never be satisfied till I work out a plan whereby **the queen lays her eggs directly in the queen-cells** and then, by subsequent management which we now know how to give, cause the cell to be flooded with milk, even before the egg has hatched, clear up to the time the cell is sealed. Anything short of this means queens not quite so good.



A bar of queen-cells that delights the eye. Note the advancing positions from bottom to top as Mr. Smith advises

Grafting

Just a word about grafting. It has been described so often that I shall not dwell upon it at length. When conditions are just right, when pollen is being produced in great abundance, as is the case in early spring when all nature seems to be in bloom, accompanied by a light honeyflow, and bees have built up to swarming strength, good queens can be reared by grafting.

Choose the smallest larvæ you can see for best results. You will not get as many accepted as would be the case if larger larvæ are used, but you will get better fed larvæ and better queens. This smaller number accepted may be offset by grafting a larger number. Under such circumstances cells like those shown in the cut can be reared and long-lived queens that will not be superseded for several years will result.

Again, grafting has many advantages in rearing queens in a commercial way, as it is easy to produce queens in quantity. Personally, I have used the grafting method for thirty years and claim to know something of its advantages as well as its shortcomings. I am frank to say that I believe **grafting is a very poor method to use when quality of queens alone is considered.** Over twenty years ago, in a paper written for the National Beekeepers' Association, I stated that if grafting did not actually injure the larva it certainly did it no good, and I remember Dr. Miller heartily endorsed that statement. While he used the grafting method in an experimental way, he did not use it for rearing queens for honey production.

Over twenty-five years ago I experimented in getting the queen to

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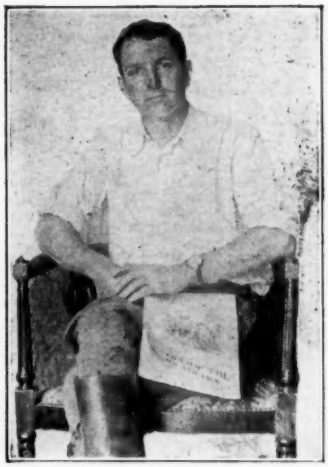

R. B. MANLEY

Where IS the Money for Your Honey?

By R. B. Manley
England

Nine-tenths of the money in the hands of one-tenth of the people -- is that the answer? According to Manley, English honey is a delicacy eagerly sought by those who can afford it. In America, honey is just another syrup and if it is as cheap as any other -- or not much higher -- it may sell. (That's tragedy for our boasting, isn't it?)

I WANT to recall the article by Leonard S. Harker in the September number, page 369, under the title "Getting the Money for Your Honey." At the beginning of that article he says: "When it comes to marketing honey, it is always assumed that the public has sufficient money to buy, but the purchasing power in the hands of the public is chronically insufficient to purchase the whole of the products of the industry. Wages, salaries and dividends are never enough to purchase all."

All of his remarks are of considerable interest. They point out the undoubted fact that there is much interest in economic problems by the general public, who, before the shoe began to pinch, never troubled their heads about such matters.

Mr. Harker appears to assume that because the public has not sufficient money to buy it, honey (and other goods) is a drug on the market.

There is **plenty** of money, but that money is for the most part in the hands of a small percentage of the population, probably not exceeding one-tenth. You in the United States produce honey in enormous quantities at low cost, but that large production has the inherent fault that it compels you to sell your product, for the most part, to that moneyless nine-tenths of your population negatively referred to above.

No matter how low a price you ask for it, your product must be more or less difficult to dispose of for the simple reason that your customers do not have the purchasing power necessary to give them effective demand for more than the barest necessaries.

The bulk of the purchasing power or command of money and credit in all countries is in the hands of a favored few, and those few are totally unable to use any considerable part of this purchasing power for their personal needs or the needs of their dependents. No matter how luxuriously they live, it follows that such foods as honey must continue in limited demand until such time as: (1) income is more equally divided, or (2) the quantity of honey is increased so there shall be enough to go around.

In the United States there is a tendency, as recently pointed out in the American Bee Journal, on page 278, "Extracted Honey at 75 Cents per Pound," for wealthy persons to spend their money deliberately on foreign goods at high prices because they are advertised as novelties, rather than to buy equally good commodities of home production at one-tenth the price. Having more money than they know what to do with, such persons are indifferent whether they pay 5 cents or $5.00 for a pound of honey, provided they get what the current whim may lead them to wish for. Conversely, the propertyless citizens (the proletariats) must make up their minds what they can do without most easily. Honey is apt to be one of those things.

In England, honey cannot be produced in the large quantities possible in countries where the climate is more favorable, and so English honey is a luxury, afforded only by those able to afford such luxuries. Usually there is barely enough English honey produced to supply these customers.

In an average season there is never more than barely enough to supply this demand at high prices, but at rare and long intervals, when two or three good seasons come in succession and a heavy crop of honey leaves a surplus unsold, a glut is caused.

In these rare cases, production being in excess of the requirements of those who can afford to pay high prices for a special article of luxury, and the producers being unable to hold the product over, a considerable amount of honey changes hand at low prices. Usually in England the quantity is so small that those interested in the trade, and well aware that English honey is never in excess of demand over any considerable

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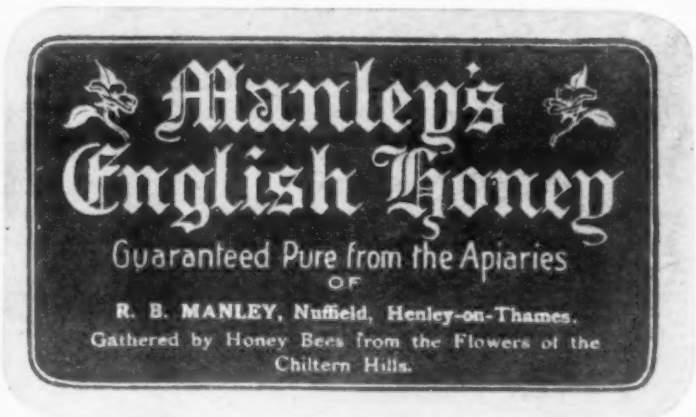


Manley's English Honey is a prized English product in a country proud of its production

The Turbidity of Honey in Relation to Colloidal Constituents Present

By R. E. Lothrop and H. S. Paine
Carbohydrate Division, Bureau of Chemistry and Soils
U. S. Department of Agriculture

ONE of the chief benefits obtained from processing honey is greater clarity. The usual method of processing honey consists of moderate application of heat, straining, and sometimes the use of vacuum over a period of time. This type of treatment is usually effective in removing a large portion of the substances present in gross suspension, as well as most of the small air bubbles that are sometimes found distributed through honey.

The removal of suspended matter and air bubbles improves the appearance of extracted honey to a considerable extent, but still leaves a certain degree of cloudiness or turbidity. In fact, all extracted honey is somewhat turbid, and methods of grading honey for color must take turbidity into account. In a previous article (1) it was pointed out that the colloidal constituents (very fine suspended matter) of honey greatly influence its clarity, and that by removing the colloids a very clear, brilliant product is obtained. Colloidal substances consist of extremely fine particles (suspended throughout the honey) which are so small that they cannot be seen even with a powerful microscope.

Colloidal particles behave quite differently from ordinary (larger) suspended particles, and are difficult to remove, especially from heavy viscous liquids such as honey. The cloudiness remaining after extracted honey is processed by one of the usual methods is due to the presence of colloids, since these very small particles are not removed by ordinary methods of processing. For this reason we are accustomed to a certain degree of turbidity in honey, and turbidity is considered to be a characteristic property of honey.

Although it is recognized that honey connoiseurs and persons who habitually use honey do not object to a certain degree of turbidity, this cloudiness may be objectionable to those who are more or less unfamiliar with honey. This is especially significant in view of the present demand for syrups of brilliant appearance, especially when packed in glass containers. To one not familiar with the characteristic properties of the product, a cloudy syrup or a cloudy honey may denote careless handling, and therefore be regarded with suspicion. A brilliantly clear product on the other hand tends to reassure the prospective user in this respect.

Honey that has been processed so as to remove colloidal constituents as well as suspended particles of larger size presents a brilliantly clear, sparkling appearance and is therefore particularly appealing to the eye. This may be a matter of considerable importance in arousing interest in potential new consumers, thereby extending the market for honey. A practical process for producing such honey would be of considerable value in stimulating honey sales, especially to those who buy honey only on rare occasions, or when their attention is particularly called to it. The possibility of developing such a process will be discussed in a later article. The present discussion will be confined to the manner in which colloidal constituents produce the varying degrees of turbidity found in honey.

Honey is a rather complex mixture and subject to certain physical as well as chemical changes. On standing for some time most types of honey granulate. This is a physical change, and is due to the separation in the form of crystals of part of the dextrose present in honey. Granulated honey can usually be restored to liquid form by moderate heating, since no chemical changes have occurred during the process of granulation. By way of contrast, however, fermentation of honey is accompanied by certain chemical changes, so that fermented honey is permanently altered and cannot be restored to its original state.

Granulation and fermentaiton are well known processes occurring in honey and represent, respectively, typical physical and chemical changes that take place. Many other changes occur in honey that distinctly influence its character, and some of these are not as well understood as the two mentioned. The turbidity of honey is affected by both physical and chemical changes.

The turbidity or cloudiness of honey is due largely to the presence of colloidal particles. The degree of turbidity depends to a considerable extent, but not wholly, on the nature and quantity of the colloidal material present. For instance, it is possible to vary the turbidity considerably by changing the water content. If honey is diluted with water a very great increase in turbidity takes place. In some cases the diluted honey appears almost milky. On the other hand, if honey is concentrated somewhat the turbidity has a tendency to decrease. From this it appears that the water content plays an important part in influencing turbidity.

From the standpoint of cause and effect it is perhaps more correct to state that the concentration of sugars in honey influences its turbidity, since in all probability the change in sugar concentration that accompanies dilution is largely responsible for the observed increase in turbidity. In other words, increasing the sugar concentration tends to decrease turbidity, whereas lowering the sugar concentration tends to increase it.

It has been reported by certain investigators that concentrated solutions of cane sugar promote the formation of colloidal suspensions in certain cases, and that the sugars, dextrose and levulose (of which honey is largely composed), are much more effective in this respect than cane sugar. However, only relatively concentrated sugar solutions are known to be effective, and on dilution the ability of the sugar solution to promote formation of colloidal suspensions is very greatly diminished. The turbidity changes that occur when honey is either diluted or concentrated are more readily understood when this particular behavior of the honey sugars is taken into account.

A careful study has been made of the relative turbidities of various honeys at different dilutions. It was found that when honey is diluted there is a regular increase in turbidity with increasing dilution. When the diluted honey is carefully reconcentrated by boiling in vacuum at a low temperature, the turbidity decreases regularly as the honey becomes more concentrated. Apparently a partial coagulation of coloidal substances takes place on dilution, the extent of which depends on the amount of dilution. In other words, the ability of the sugars to hold the colloidal material in suspension is markedly lessened by dilution, so that a portion of the colloids flocculates and tends to separate in the form of larger particles. In the flocculated or partly flocculated state, colloids

(Continued on page 57)

1. Lothrop and Paine, 'The Colloidal Constituents of Honey and Their Influence on Color and Clarity,' American Bee Journal, Vol. 71, No. 6, pp. 280-281 and 291, June, 1931.

Wintering Bees With Top Entrances

By H. J. W. Lipsett
Alberta

This article is a challenge to our notion of what bees need in winter when the temperature is constantly low--and when it gets to 45 below zero most of us have little idea of just how cold that is. If the top entrance will take the place of the cellar where conditions permit, maybe it will simplify wintering for many cold-country beekeepers.

THIS article is written for those who live in the North, where at times the temperature may go down for a few days to 45 degrees below zero. Beekeeping in the South is a different problem altogether.

As a beginner, I used bottom entrances in winter because all good beekeepers used them. In the spring of 1931, when I opened my hives and saw the condition they were in, with from one-half to three-quarters of an inch of dead bees on the bottom boards, combs mouldy, walls dripping with moisture, even though absorbents were used, lumps of ice here and there, honey granulated, and all the bees in many colonies dead, I resolved to see what a top entrance of my own design would do.

On one of the worst of these colonies, therefore, I put a top entrance. Three or four days afterwards I examined them to find that even in that short time they were warm and quite dry. I concluded that if a top entrance could produce satisfaction in a few days it might be well to try it out on all my colonies the following winter.

I did so, and the first time the bees came through 100 per cent alive, although temperatures were down to 32 degrees below zero and the bees had no cleansing flight for three and a half months. They were left on their summer stands, single-walled hives, two stories high (Jumbo on top, and only protected by loose straw piled around each colony.

This winter my bees are all packed away with top entrances. I have three different designs in use. The only similarity between them is that each has a sheet of Tentest composition board suspended above the frames about one-half inch, and in this two openings are cut, one ¾ inch by 4 inches across the frames, over the ends, close to the front entrance; and another, a slot ½ inch wide by 9 inches long, running from front to back parallel with the frames and a little to one side of the center of the brood nest. These two openings together measure 7½ square inches in area. I leave fifty pounds or more of honey for winter and spring and I expect to see these bees come through 100 per cent alive.

The bees which fall on the bottom board form a mass which is cold and wet. To a live bee seeking exit this is just as deadly as a sheet of Tanglefoot would be to a housefly.

Last winter I used loose straw for packing around them, but this is a mistake. I am indebted to a neighboring beekeeper, John Bosch, for a briefly stated reason why tar paper should be used in packing bees. In an attempt to keep potatoes from freezing by covering with straw, it was found that the cold, penetrating winds would drive through the straw, even as much as fifteen feet piled over the potatoes, but when the force of the wind was broken by tar paper only a moderate amount was required. So we learn a lesson of value from the humble potato.

The straw or chaff is first packed into the corners formed by the tar paper and the paper is then bound around securely by binder twine. It requires only about 10 cents worth of tar paper for each colony. The top entrances can be made for less than $2.00 and will stand considerable hauling and abuse.

Designs for top entrances can be produced by the dozens, but the problem is to find, if possible, a design which may be adopted as a standard. In the spring I have found the brood in every colony right under the one-half-inch slot, with a cluster of bees in the slot, closing it off except for an inch or two at the front end. They don't seem to bother about the opening at the front over the ends of the frames.

When the weather warms up in the spring, in April or May, I take these entrances off and store them away for the summer and change over to the bottom entrance.

The top entrances have been used at the Experimental Station at Lethbridge, Alberta, for the last four years with fine results. They are being tried out at the Experimental Station at Morden in Manitoba and are used with success in Minnesota.

They may be used with one story or with two stories, but I believe that two stories is best, because the cluster will form at the top under the entrance. In this position it will be at some distance from that mass of cold, wet, dead bees on the bottom board, and if there is any quantity of dead bees there the bottom combs are sure to be a little mouldy.

Associations Should Tackle Markets

The Iowa Honey Producers' Association, the Lone Star Honey Producers' Association and a few others are seemingly awake to the urgency of doing something for their members other than producing more bees and more beekeepers. When the associations that are now offering protection and prevention and flaunting the firey bush begin to awaken to the fact that beekeepers are more in need of marketing, we will just that much sooner begin to enlist the interest of the beekeepers themselves who do not now belong.

There is something wrong with any association in which beekeepers are not promptly interested, seemingly never becoming interested at all. If you have something valuable to sell, you have only to make the facts known about it, to put the price right, and it will surely sell.

The "big bug in the soup" is simply this: too many associations constantly attempting to force some pet fad which is not meeting with the approval of the mass of beekeepers.

If your sales talk is wrong, if it is not pulling in membership, there is something out of whack. Take an invoice with yourself; figure out the reason your membership is less than one in ten, then adapt your ways to the points of sympathy and interest, and you will experience no great difficulty in bringing up the membership.

J. H. Sturdevant,
Nebraska.

Thank You, Wesson Oil

In the "American Independent Baker," Wesson Oil and Snowdrift Sales Company have been running remarkable advertisements, each picturing in full color reproduction some famous food product on one page and on the reverse side a baker recipe for the making of the product just as it is pictured.

In a recent issue is a colored picture of Honey Holiday Spice Cakes, little frosted cookies, some just regular cooky shape and others cut like camels or like old Saint Nick. Then the recipe on the other side calls for one and a half pounds of molasses, four pounds brown sugar and SIX POUNDS OF HONEY. They give the method of mixing and baking and suggest several varieties of uses.

From the Little Blue Kitchen

Honey.

Honey,
Saved by bee thrift
From flower hearts' lavish wealth,
You bring to man that glorious gift—
Good health!

Lida Keck-Wiggins.

— o —

IN these mid-winter days, when the family's palate has gone somewhat blase, it's nice to give them little surprises in the way of something unusually good at meals.

And housewives who are fortunate enough to be beekeepers' wives can do this in a lot of ways without any extra expense.

For instance, there is the fritter which a radio broadcaster recently announced she has discovered to be the most popular dish in a little New York restaurant which she frequents! Substituting honey for sugar in almost ANY fritter batter, and then adding something for the character-giver, is a scheme worth trying. Apple fritters made with honey or with honey over them are delicious. This is true of bananas, too, and many other things. Indeed, almost any left-over meat or fruit will help out a fritter and reward a cook by emptied plates—any cook's delight. In case anyone reading this hasn't a good fritter batter recipe, here's one that has been tried and NOT found wanting:

Make a batter of

1 cup of milk
2 cup flour
2 teaspoonfuls baking powder
1 teaspoonful salt
1 tablespoonful honey
1 egg, white beaten separately.

Let stand for one hour before adding the beaten egg white. Then add banana sliced thickly, or whatever else you decide on for your fritters. Corn makes a nice fritter for a change. Fry in deep smoking fat (vegetable if possible). Sprinkle with powdered sugar and serve hot.

— o —

For the little housewife-to-be—mamma's right-hand girl—here is a fine recipe to use when desiring something extra good in the way of fudge. A wee girl passed it on to Honey Lady, who knows by the one infallible proof—Blue Kitchen try-out—that it's worth while:

Honey Nut Fudge

2 cups sugar
1 square unsweetened chocolate, cut fine
1 cup milk
Pinch of salt
¼ cup strained honey
½ teaspoonful chopped nuts

Cook sugar, chocolate, milk and salt five minutes. Add honey and cook to soft ball when placed in cold water. Remove from fire and add nuts and a teaspoonful of vanilla. (Almond flavoring is nice for a change if desired.) Drop from a teaspoon into oil paper to form patties or put in greased pan and cut into squares when cool.

— o —

From Mrs. Ruth Carroll, of the Carroll Apiaries, Central Lake, Michigan, comes this little much-appreciated contribution, which is timely these cold days. Mrs. Carroll writes:

"Do you know that the good old American dish, 'baked beans,' tastes best when baked with honey instead of brown sugar? It's a flavor hard to beat?"

Honey Lady admits she had NOT known this, but wasn't long in trying it out, and she can now say "Amen" to Mrs. Carroll's statement.

Mrs. Carroll went on to remark that "In these days, such as they are, beekeepers with honey on hand, which if sold brings little enough, will find ample opportunity to substitute honey in many of their favorite recipes.

"One day, desiring to make a rice pudding and lacking flavoring extracts, I decided to try honey for flavoring, with very satisfactory results. Following is the recipe for a dish or two.

"One-half cup rice cooked in water with salt until nearly done. Finish cooking in enough milk to cover. Add two teaspoonfuls of honey, one egg yolk beaten and a small piece of butter. Last, stir in a stiffly beaten egg white."

— o —

Here is a conversation overheard by Honey Lady at a church supper the other evening:

Mrs. Bretney: "Have you tasted the whole wheat bread the N. S. bakery is making now?"

Miss Bartlett: "Yes, and it's the best thing I ever ate. I don't keep house now, but I keep a loaf of that bread in a box in my room. It's better than candy or cake."

Mrs. Bretney: "I'll tell you why. They make it with honey."

— o —

Many great writers have devoted time and ink to the habits of the busy bee. Maurice Maeterlinck, in his "The Life of the Bee," has this beautiful paragraph:

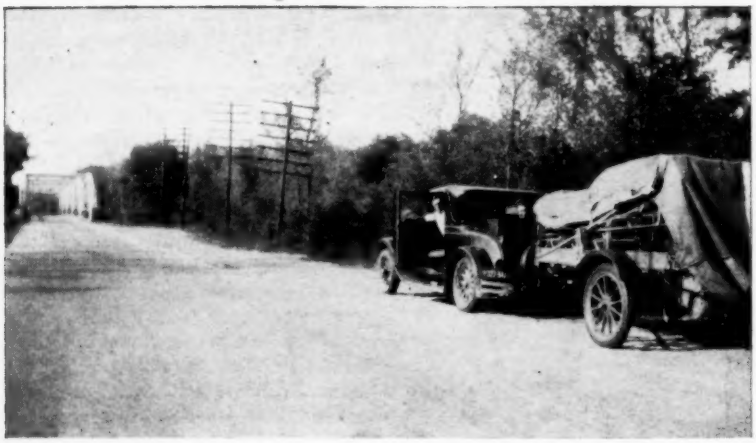
"Day after day, at the first hour of sunrise, the explorers of the dawn return, and the hive awakes to receive the good news of the earth. 'The lime trees are blossoming today on the banks of the canal.' 'The grass by the roadside is gay with white clover.' 'The sage and lotus are about to open.' 'The mignonette, the lilies are overflowing with pollen."

Whereupon the bees must organize quickly and arrange to divide the work. Five thousand of the sturdiest will sally forth to the lime trees, while three thousand juniors go and refresh the white clover. Those who yesterday were absorbing nectar from the corollas will today repose their tongue and the gland of their sac and gather red pollen from the mignonette or yellow pollen from the tall lilies; for never shall you see a bee collecting or mixing pollen of a different color or species; and indeed one of the chief preoccupations of the hive is the methodical bestowal of these pollens in the storerooms, in strict accordance with their origin and color. Thus does the hidden genius issue its command.

A Queen-Hunting Spider

About the article by Mr. Mosteller on page 442, November: I have lost several queens and found in each case the cause was a spider—a grey spider with a leg spread of about one inch. This spider enters the hive and, after building a web, goes for the queen first. There is method in that. The bees then become discouraged, run around aimlessly and are easy prey for the spider as long as they last. An occasional spider hunt can save many a hive before the damage has become serious.

[This is something new. How many of our readers have seen such a thing?—Editor.]



Trailer and coupe, with three to drive, make a non-stop trip fairly easy

Hauling Bees Two Thousand Miles

By John Fruechte
South Dakota

More and more each year, trucks pass with bees going north to reap their harvest. Fruechte tells us just what he learned the first time and he is willing to do it again.

NOW that it is drawing near the time of getting package bees, let me tell you of my experience on a trip from Florida two years ago with one hundred and five packages of bees.

When I arrived in Florida, I bought six colonies and took charge of eighty more, and in the arrangement for taking care of the eighty colonies I could take three-pound packages at 75 cents per package and requeen the colonies.

I found it harder to get the bees and queens ready than many northern beekeepers are aware. The raising of queens alone seemed a more difficult experience than any I had had in the North.

Most of the difficulties were probably due to insufficient acquaintance with southern methods and the behavior of the bees. The bees with which I had to deal were a wild, let-alone variety with swarming habits. It seemed as though 95 per cent of the nuclei would swarm out. It was not as easy as it looks to raise queens. It was not entirely a matter of cutting out brood, putting queen-cells in it and furnishing it to a little box of bees with the result of getting a laying queen a few weeks later. It did not go as smoothly as that by any means.

Since I had so much difficulty in raising sufficient queens, I finally decided to buy queens from a breeder, and he sent them to me.

In shaking the bees to form packages, I found that it was not as quickly done as I had thought. The first day two of us, new to the job, only shook twenty-five packages and had much difficulty in finding the queens. And were those bees "ornary"! Later we shook both queen and bees in the cages to hurry the job, as I did not wish the bees caged any longer than necessary. In some cases I kept the queen, in some cases I discarded her, and in some I discarded them when I took the bees out of the package. All packages, of course, were properly marked to show what they contained as to queens.

The feed and cages were fixed up after dark to save time in the day to work on the bees. After the second day of shaking we were ready to load and get on our long journey north. The packages were stacked up three and a half rows high, all nailed and wired together, making about an 800-pound load. I built a trailer from the rear running gear of a model T Ford, on which we mounted a box 8½x4 feet with 6-inch sides. I tacked some heavy canvas in front to shut out the draft.

We got started north about 4 o'clock on Wednesday morning, April 21. It was a nice, cool morning, with some rain—ideal weather for hauling bees out of Florida. I had worried about getting the bees too warm and restless or even smothering them, which is one reason for starting with the bees at this early date.

I do not believe there is much danger of bees getting too warm while driving. During the second night of driving through Indiana, I realized it was quite cold, so I let the canvas down on the sides, with only two small openings on each side at the front corners. Later I considered even this was too cold for them, so I shut the ventilation off still more, as the temperature was near freezing.

Somehow the canvas got loose on one side during the later hours of the night, the bees were badly chilled and many were lying on the bottom of the cages. We covered them up tightly, thinking they would warm up and come to life, but the morning stayed cold with a north wind blowing.

Something had to be done to get the bees warmed up and fed. I was sure that some of the feed containers were empty, as many had leaked out from shaking. I want to say here to those who wish to haul bees in this way that the feed containers with cheesecloth on the inside over the small holes will hold feed better than with the holes alone. (On my next trip I will want to try candy.)

It was about 10 o'clock in the morning when I pulled into a farmyard, got on the south side of a barn, unloaded the bees, set them in the sun to warm and fed them. It is quite a job to fill all the containers with feed. I also took a brush and painted the screens of the cages with feed and also squirted feed out of an oil can through the screen, onto the bees. It took all of two hours before I was ready to go on. I got to my father's farm at Eitzen, Minnesota, at 6:30 in the morning, where the bees were again unloaded and put into a warm brooder house for warmth and food and kept there over night.

The next day I still had 350 miles yet to go in a cold north wind. On my arrival at Elkton, South Dakota, the bees were fed again and some were put right into the hives on honey in a building where it was about 15 degrees above zero. Others were transferred to the hive the next day right in the bee yard.

My distance from Florida was two thousand miles, which took me eighty-six hours, counting all stops and one night and fourteen hours stayover. The first two nights and three days were of continuous driving, sixty-four hours from Florida to Minnesota.

We were a party of three, changing places to drive the car, which is a medium weight coupe with a rumble seat. The latter was made into a bed for one to sleep. We had no trouble except one flat tire through the entire trip.

I might mention that a trip to Texas or Louisiana would be only half as far for Dakota and Minnesota beekeepers, and bees could be brought up in thirty to forty hours.

The reason I go to Florida is because of my interest in an orange grove and my acquaintance with localities and beekeepers.

The bees did not come through as good as they might, as I lost from 15 to 25 per cent of the bees, but with the experience I now have I would not be afraid to go after another load, and expect better results.

The Turbidity of Honey in Relation to Colloidal Constituents Present

(Continued from page 53)

produce a much greater turbidity effect than when they are present in true colloidal suspension.

It has also been observed that when honey is diluted considerably with water and then reconcentrated in vacuum to its original density the resulting honey is slightly more turbid than before dilution and reconcentration. It appears that a portion of the colloidal substances that coagulate on dilution do not return to their original finely divided colloidal state when the honey is reconcentrated. This accounts for the slightly greater turbidity of the reconcentrated honey. Colloids of this type are called "irreversible" in contrast to colloids which can return to the colloidal state after being coagulated and which are therefore termed "reversible" colloids.

Egg albumen is a typical "irreversible" colloid, and the coagulation and hardening of egg white when an egg is cooked represents the change to the "irreversible" state. Cooked egg white cannot be dissolved in water, whereas raw egg white readily dissolves or "disperses" in water. Substances such as gum arabic and various other plant gums, on the other hand, can be re-dissolved in water after drying out and are representative of the "reversible" type of colloid. Honey contains both types of colloids, and each type influences the turbidity of honey in a somewhat different manner.

It is probable that a small portion of the colloidal material present in honey of average density is partially coagulated. This would explain the observed fact that honey of ordinary density shows a definite decrease in turbidity when its concentration is increased somewhat. Neglecting other factors that influence turbidity, such as the nature and quantity of colloids present and the degree of acidity, it is to be expected that honeys of good body (high density) would be somewhat less turbid than the same honeys of poorer body (low density).

The degree of acidity of honey is another factor that enters into the question of turbidity. Although the relation between the turbidity and the acidity of honey is complex and space does not permit discussion of it here, a few facts concerning it may be interesting. When a number of honeys are examined chemically considerable differences in the degree of acidity are found. These differences have a very direct bearing on turbidity, since honey colloids coagulate to the greatest extent at a certain acidity value.

If the natural acidity of the honey is very near this critical point, the greater tendency of the honey colloids to coagulate will produce a corresponding turbidity effect. In certain honeys the colloids have been observed to coagulate almost completely and to settle out when the honeys were diluted with water. The acidity of such honeys was found to be very near the critical acidity value mentioned above, indicating that the acidity of the honey, in addition to its density and the nature and quantity of colloids present, has a definite influence on turbidity.

It is apparent from this brief discussion that turbidity in honey is influenced by a number of factors, but is due directly to the presence of colloidal substances. The practically total elimination of turbidity and the production of brilliant clarity is an important benefit to be derived from the clarification of honey by a process that removes colloids.

How About the Health Value of Honey Colloids?

By A. Gordon Dye
New York

I was interested in the article on page 444 on the "Colloidal Constituents of Honey." But, if I am correctly informed, these same colloidal constituents may be the most valuable elements in honey. I recently listened to a lecture by a doctor who has won considerable distinction in curing the ills of humanity by the use of proper foods, and he stated that the only way we can utilize the minerals necessary for health is when they are taken into our bodies in the colloids found chiefly in uncooked vegetables, in milk, honey, and so on.

This morning I had a long talk with an old friend, head of the botany department of the University of Rochester, and I asked more about colloids in plants. It seems they are formed in the leaves of plants, have an electrical charge and attract and hold minute portions of minerals. They are not easily precipitated, so they serve to store these minerals in the plant tissues as a physical, but not as a chemical, part of the plant structure. But in cooking and in refining foods they are frequently dissolved and so leave our foods deficient in needful minerals.

Since in honey we have concentrated solution of plant juices in which the constituents have not been destroyed by heating, refining or other manipulations, we have a valuable source of needed minerals. The part the various minerals found in the human body play in the functioning of the body is not fully known, but doctors know that a deficiency of any of several minerals normally present results in the lowering of general health or in serious functional disturbances. Therefore we should welcome the presence of colloids in honey and make their presence an argument for the more general use of honey.

Does the Flavor of Poplar Honey Improve With Age?

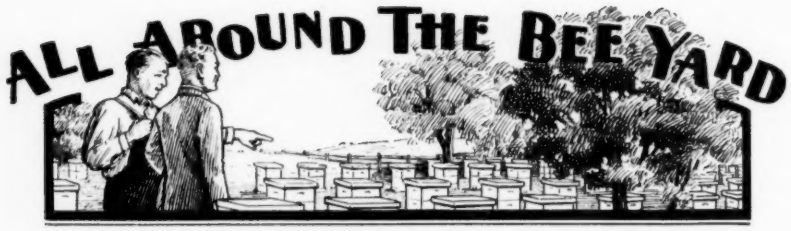
By Walter H. Hull
Virginia

Cleaning up the honey house one day, I came across some sections of poplar honey that had been thrown aside and forgotten. The reason was plain enough. Poplar honey, as we all know, grows darker with age, and this had aged for two years, leaving it almost black. It had leaked a little, streaking the face of the comb. Altogether it was about the sorriest looking honey I had ever seen.

Wondering if it would taste as bad as it looked, I dug my knife into one of the combs. Directly I got a big surprise, for that black, disreputable-looking fruit of the hive had a rich, caramel-like flavor that seemed to me about the best I had ever tasted. It was hard to classify, and still harder to describe, but it was there and once tasted not likely to be forgotten.

There was a little granulation along the midrib of the comb, quite coarse, as is characteristic of poplar honey; but most of it was still liquid and very thick in spite of being in a hot room. It was this heavy-bodied liquid honey that had the remarkable flavor. In the granulated portion it was either absent or hidden by the granulation—at any rate not so noticeable.

I recalled that customers had sometimes remarked the fine flavor of our dark honey, but at the time I had laid that to their peculiar preferences, since poplar honey is not usually considered very fine. I do not care for it at all when fresh, and many customers will not have it at any price. Now I am wondering if the curiously striking flavor is a natural result of aging, perhaps where granulation has been retarded through natural causes, or if there was some other element in this honey that gave it its outstanding quality. If it should be true that poplar honey improves with age, or can by any method of handling be made to improve with age, that fact would be worth knowing.



HERE it is January 3 and, like last month, I have been looking over the calendar to see what has happened in the bee yards. In the January issue a good flight was reported on November 29 and up to December 14, when we expressed the hope that the bees would have a flight some time the first half of January.

Well, here it is January 3. On the fourteenth of December it dropped to 20 above and continued down until it was 10 below zero on the sixteenth. It remained cold until the twenty-third. Then it started to warm up, and two days after Christmas, December 27, the bees had a flight, which continued to increase for three days. On the thirtieth it turned colder again for a short time, and now, January 2, 3, 4 and 5, the bees have had full flight, even going after water some distance away.

— o —

Such a variation as I see today in the amount of flight: Here at the yard close by there are both Caucasian and Italian bees together in the same apiary. (It is not very good practice, but then it leads to a number of observations.) The Caucasians now, at 2 o'clock in the afternoon, are not flying as freely as the Italians. The latter seem to be in pretty general flight. On the front of one of the Caucasian hives I found, however, that the bees were right there ready, because they came out at once. Two of them stung me. The first stings in 1933! And from Caucasians at that!

— o —

I notice such a variation in the amount of dead bees in front. Some colonies have scarcely any, others have as many as two good handfuls of dead bees. Possibly those without any had not yet taken the trouble to remove the dead ones from the hive. Possibly they have not lost the bees, so there are not that many to bring out. Anyway the variation is noticeable.

— o —

Then there is such a difference in the amount of protection which is afforded by the environment immediately around the apiary. At my house I have five colonies in which I consider to be a protected place, but on top of a hill nevertheless, and there the flight is scant today; while down at the bottom of the hill, in the larger yard to which we have just referred, the flight is very general, apparently because there is considerably more protection there. I believe a great part of wintering is in protection from wind and in the natural warmth of winter sunshine.

— o —

I received a good comeback on my suggestion of last month that people may still be quite suspicious of honey. It comes from Swanny (our congenial Carroll Swanson), who proposes that the suspicion may be in part lack of confidence in the seller and not in the product. That's quite true!

I well remember Editor Demuth of Gleanings telling me that it took him almost ten years to build up a market for his honey at Peru, Indiana, to the point where it repeated consistently in volume every year. The buyer came to know him thoroughly as a perfectly honest, sincere beekeeper with a reliable product. Before that it was hard for him to sell. That is why most stores have confidence in the products which they secure from their wholesale house, because they know that if there is any trouble the wholesale house is there to make it good.

Surely the beekeeper is in the same position before a buyer as any stranger would be before him, should he be asked to buy products with whose worth he was not familiar and of whose thorough honesty he was not yet convinced.

Yes, indeed, it takes time to establish a good outlet for your honey, and it is something to which time should be given. I have always said that, as far as the commercial beekeeper is concerned, half of beekeeping is marketing. I believe that's just as true as can be. Production and marketing are not at all related and the beekeeper who gives as much attention and thought to mastering the details of selling his honey as he does to producing a quality product surely has nothing of which to complain. He has a completely balanced occupation.

G. H. Cale.

The Bee as a Weapon

This is the title of an article in the New York Sun sent to us by C. D. Cheney, of New Jersey, which reports news stories on the use of bees as weapons.

It tells that two unemployed motion picture operators loosed a swarm of bees inside of a theater. The police were asked to investigate the possibility that bee freeing was a new device of racketeers.

The other one was about soldiers in airplanes and armored automobiles who proceeded against Itumbu, chief of the Ukambi tribe, in Southwest Africa; they met bees and were routed.

"Using bees in this way is like converting farm tractor plants into wartime factories for military engines. If the possibilities of bees on the offensive occurred to African savages and American racketeers at the same time, it is interesting. They may have gotten the idea from Kipling's 'Red Dog,' in which Mowgli and Kaa turn the bee trick against the dholes. It is sad to remember that Ukambi, where the British were routed by Itumbu, is the district governed by Edgar Wallace's Commissioner Sanders. Where were he and Lieutenant Bones?"

Those Bees in the Chimney

By P. Petersen
Iowa

In the December issue Mr. Charles E. Phillips, of Ontario, has a short article and a good picture of a chimney said to contain bees. I have nothing to say against the picture (although it does not show any bees), but when Mr. Phillips speaks "slightingly" of Iowa bees and considers those in Ontario more intelligent, I beg leave to differ with him.

Being largely responsible for the picture of the bees in the well (page 275, July,), I know that they built in the well in July 1931, one of the hottest months on record here, when that well was more comfortable than a chimney. And considering the fact that most of the bees came out alive while those in the chimney of Mr. Courts, which Mr. Phillips reports, came to a bad end, it seems that the Iowa bees showed the most intelligence.

Or was it because they had more luck than sense? Undoubtedly they came out ahead, if we leave out of the picture those that fell in the water. If Mr. Phillips will look up the February 1923 issue, page 85, he will find that not only do Iowa bees settle in chimneys, but Iowa beekeepers know how to get them out alive and make a profit from them.

[We do not believe that Mr. Phillips was earnestly claiming more intellect for Canadian bees. Of course, the whole thing is a joke.—Editor.]

The Junior Beekeeper

RUTH R. SMITH
Editor

Dear Children:

These winter days there is no chance of our finding any stray swarms out in Daddy's bee lot, so let's play it is summer and we are hunting bees. Just see how many bees you can find in that picture at the corner of the page. And don't forget to find the queen. Then take your colored crayons and see what a charming picture you can make. You may send it to me if you wish, for our Big Editors insist that you and I must get acquainted; and that would be a very good way of introducing ourselves, don't you think? Also remember to tell me about your bees.

Yours,

Ruth R. Smith

the Editor.

Twinkle, Nimble and Blink Hear About Babies

TWINKLE, Nimble and Blink had been watching Mr. and Mrs. Wren, far too busy to stop for a bit of gossip, hurrying back and forth with bits of food for their babies.

"Babies are a lot of work," murmured Blink lazily, and Nimble nodded.

"But they are darlings; Mrs. Wren says so," declared Twinkle.

"All babies are interesting," added Blink.

"To be sure they are," said a voice, and there stood Fuzzy, the honeybee, on the twig beside them. "You just ought to see ours! Mrs. Wren thinks hers are wonderful, but ours—ours are the prettiest, dearest, cunningest—"

"Tell us about them," begged Twinkle, crossing his legs comfortably.

"Do your babies have cradles and have to be fed and taught to fly and—" Nimble paused, out of breath, and sat down between Twinkle and Blink.

Fuzzy laughed.

"And are they something like these Wren youngsters?" queried Blink.

"Something like them, only nicer," returned Fuzzy proudly.

"Do please tell us," begged Twinkle again, and the other fairies nodded.

"Well," began Fuzzy, "our babies have cradles, built of wax, just like the little rooms or cells where we store honey." The fairies nodded again.

"These cradles are usually grouped together near the center of our home, so we can keep them warm and snug. As fast as a baby outgrows its cradle and comes out, we bees clean and polish the cell and it is ready for our queen—"

"Your queen is the mother, isn't she?" interrupted Blink.

Fuzzy nodded. "Yes, and a most wonderful mother she is; but you must not think of her as managing the household or telling us bees what to do. Her duty is to lay eggs."

"Eggs?" queried Nimble. "Eggs? Like birds and—hens?"

Fuzzy smiled. "Yes, though of course they are very, very small, and long and slender."

"To be sure," murmured Nimble.

"When the cradles are all nicely polished and ready, our queen backs down into them and one egg is placed in each cradle by her. Then she moves on and the wee eggs are left to be kept warm by the bees."

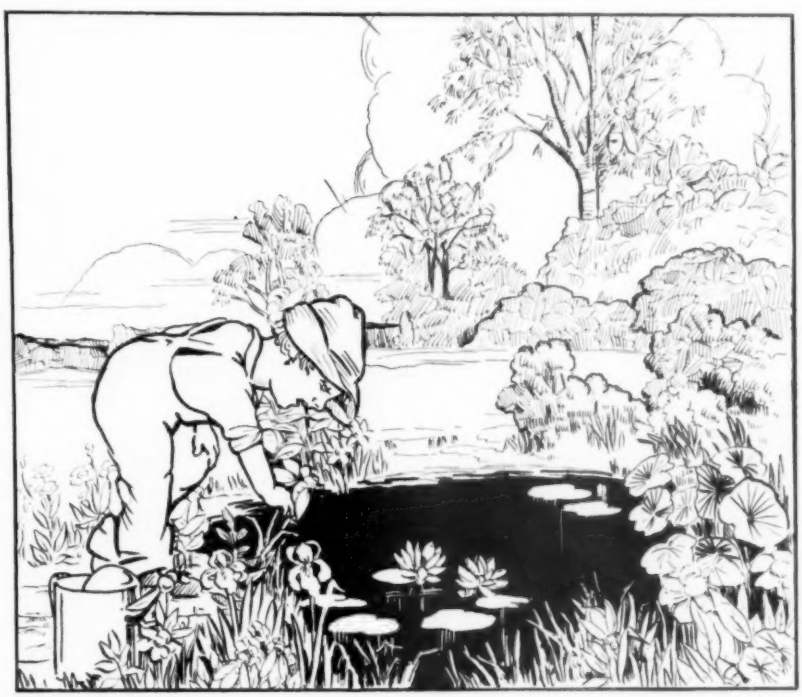
"And do the bees sit on them—like Puffy, the hen, or Mrs. Wren?" asked Twinkle.

Fuzzy laughed. "No, indeed, we have a far easier method. We bees keep the eggs warm by clustering about them. On the third day we bees carefully moisten each one of them with our tongues, and soon they open and the tiny baby larvæ come out. They are very small and white, and look—and are—tiny little worms or grubs."

"Well, well," declared Nimble in surprise, "who would think of a bee ever coming from an egg and turning into a grub?"

"Our Heavenly Father plans and does many beautiful, wonderful things," returned Fuzzy. "And of all God's creatures, surely the honeybee is the most wonderful."

The fairies were silent a moment,



Find the bees, especially the queenbee. Color the picture then as nicely as you can and send it to Ruth Smith. (Address American Bee Journal, Hamilton, Illinois)

then Blink said very politely: "But please tell us more. What happens next to the bee babies?"

"As the little grubs, or larvæ, lie curled up in the end of the cells," went on the honeybee, "the nurse bees' work begins in earnest, for each baby must be fed with bee milk, which has been made within the bodies of the nurse bees—fed with their tongues, as I told you. Remember?" The fairies nodded.

"All the babies are dreadfully hungry. And how they do eat and grow! Why, our babies grow faster than any other babies in all the world. At the end of nine days they can no longer curl up, but must stretch out, they are so long and big and fat. In fact they quite fill their cradles." Fuzzy stopped to smooth down her beautiful wings.

"Then what happens?" queried Twinkle.

"Then each baby spins a bit of blanket over the opening of her cradle and the bees carefully tuck her into it, with a thin covering of wax, all snug and comfortable and warm, to rest and dream and change, until but three weeks after the queen put the egg into the cradle the baby is ready to come out—a real bee, with wings and legs and tongue—"

"And a sting?" suggested Blink with a merry laugh, and Twinkle and Nimble laughed too.

"To be sure a sting, though at first she scarcely knows what to do with it," smiled Fuzzy. "Then she nibbles a hole in her coverlets and slowly and daintily crawls out—a soft, downy, delicate creature, who will soon be ready to begin her life work."

Fuzzy had completed her toilet. The three fairies sat quite still, thinking. Then Twinkle spoke.

"Are there very many babies in your home?"

Fuzzy nodded. "Not so many," she replied. "Perhaps fifteen thousand—"

"Fifteen thousand?" Twinkle gasped in surprise, while Nimble's eyes grew round in astonishment.

"That many—or more—and every blessed one of them hungry! Dear, dear, I really must go—there is so much to be done." And away she flew without waiting to say goodbye.

"Fifteen thousand babies," repeated Twinkle slowly. "And Mrs. Wren has five—and is too busy to stop for one minute to talk. Dear, dear!"

Just then such a flood of glorious melody reached their ears as only could come from the throat of Mr. Wren, a song of joy and love and happiness. The fairies listened.

Then Nimble spoke: "All babies are lovely; but, really, bee babies and wrens must surely be just the nicest of all. Come, let's go tell the Fairy Queen." And away they scampered and the honeysuckle was deserted save for the baby wrens in the wee brown house and Mr. and Mrs. Wren, who were far too busy to miss their friends, Twinkle, Nimble and Blink.

Transferring Bees from Contaminated Hives to Clean Ones

By Elmer G. Carr.
New Jersey

TEACHING old dogs new tricks is said to be difficult, if at all possible. Perhaps something depends on the dogs. Also the tricks may not be new. Here is one which, although not new, is good.

Everyone who has tried it will admit that shaking, or brushing bees from combs, when treating for American foulbrood, presents difficulties and dangers. Considerable labor is involved in removing and shaking the combs, also some danger of dropping contaminated honey where bees may get it, or that in the process uninfected bees will get a sip of honey from the contaminated combs as they are handled.

Recently I attended a field meeting of the Lehigh County Beekeepers' Association at Easton, Pennsylvania, where a method was demonstrated of getting the bees from contaminated combs into a clean hive without shaking or brushing and without removing the combs from the contaminated hive.

The colony to be treated was placed on the ground and a prepared hive was placed back of the colony and so supported that the entrance of the new hive was level with the top of the hive from which the bees were to be transferred. The top was removed from the infected colony and it was gently smoked at the entrance and drummed on the sides with the palms of the hands or with sticks, alternately smoking and drumming.

Within a short time the bees began running to the tops of the frames and shortly started into the prepared hive in a manner very similar to a newly hived swarm. Within ten minutes the hive was "drummed" so clear of bees that less than fifty remained. As the queen came up she was caught and clipped.

Transferring as Mr. Carr describes it.

This method was demonstrated by Mr. Edwin J. Anderson, extension bee specialist for Pennsylvania.

It is readily seen that it has innumerable advantages over shaking, including economy of time.

I had seen pictures of this process for getting bees from straw skeps, but, so far as I can remember, have never heard of it being used in connection with bee disease control measures.

Many Books on Beekeeping

The Library of Congress in Washington, D. C., lists 175 different books in English on beekeeping. This does not include those of general interest, like Maaterlinck's or John Burroughs', nor different editions of a single book. Including those in foreign language, the total is over two hundred. When we consider that the library carries only the most outstanding books on any subject, this number on the subject of beekeeping is significant.

Honey Bread Pudding

1 pint milk
1 cup bread crumbs
½ cup honey
Pinch of salt
1 cup raisins
Spices to taste

Bake one hour. Serve with honey and cream.

C. J. Oldenburg, Minnesota.

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

BUILDING COMBS WITHOUT HONEY

1. Do you think bees will build combs from foundation when there is no honey coming in, as described by Herman Ahlers on page 482?

2. If frames that have been in foulbrood colonies are boiled for an hour or more, would they be absolutely safe?

NEBRASKA.

Answer—1. Bees will draw combs from foundation if they have some honey in store and if those combs of foundation are placed within the center of the brood nest, so that they feel the necessity of using them. Otherwise they will not. How could they build combs if they have no honey to help them to produce wax?

2. Yes, if frames that have contained American foulbrood are boiled for an hour, the germs will be destroyed.

MOVING IN WINTER

I have a chance to get about forty hives of bees, but they have not been packed yet and we have had about a week of zero weather. They are in two bodies and seem quite heavy with honey. Do you think I can move them and then pack, or will they be dead? Let me know at once.

WISCONSIN.

Answer—I doubt that it would be advisable to move those bees at present. I would advise that you pack them in straw on all sides but the front, with as little disturbance as possible. If they are carefully sheltered on all windy sides and are left at liberty to take a flight in case of warm weather, they will be better off than if you move them in cold weather. If the colonies are strong and sufficiently supplied with honey, they will stand a great deal of cold weather.

CLEANING EQUIPMENT

I just bought some bees and hives which I think have a touch of foulbrood. I expect to clean up the empty ones and paint them and transfer the bees to clean hives in the spring. I have been told gasoline is a good thing to wash the hives out with to disinfect them. Would you advise this? If not, what would you advise to use? I expect to use a blow torch on them, too.

IOWA.

Answer—I have never tried gasoline on hives to disinfect them. But a blow torch is the best thing you can use, running its flame all over the wood inside of the hives. You might use gasoline additionally in corners that you could not reach with the flame of the blow torch. But we have found this last implement excellent when using it as tinners do.

Be sure and do not put any bees in hives that have not been thoroughly disinfected.

CELLAR WINTERING

Will you please give me some pointers on cellar wintering of bees. I have twelve colonies of bees in the cellar under my dwelling house and they crawl all over the floor and die. It's totally dark at all times. The temperature ranges from 43 to 50. The hive entrances are 4x⅜ inches. Bees are all in two full hive bodies with covers and bottom boards; covers sealed down. Please let me know what I should do to prevent so many bees leaving their hives and perish.

WISCONSIN.

Answer—Probably it is rather warmer than needed, for your bees. We always kept the temperature as near 40 to 42 as possible. But we kept our bees within one story and allowed plenty of air to circulate. When they were restless, we opened an outside door a little while, in the night. Your sealed covers are apt to retain the heat too much. At any rate, you might try and see how a little more cool air will do. If they keep quieter, just let the temperature stay lower. In Wisconsin, you ought to be able to keep them cool enough. Here in Illinois, the greatest difficulty was to keep the temperature down low enough. Be sure and keep them quiet.

HONEY CANDY

Will you be good enough to give me the following information?

Are there confectioners who manufacture chocolate, nut, fruit and hard candies using honey exclusively?

How does the above candy keep under changing climatic conditions?

I am interested getting in touch with manufacturers of the above who use no chemicals or preservatives or granulated sugar or glucose. NEW YORK.

Answer—I do not believe that there is any method by which candy may be made with honey that will retain its hardness in soft weather. I believe that nearly all candy making with honey is disabled by that tendency of honey to gather moisture in damp weather. If any of our readers can give information in this matter we would like to get the facts.

HOW MANY BEES?

1. How many colonies can one man run without any hired help and with modern equipment?

2. Is it possible for one man to run an outapiary?

3. My honey is just about all sold out, what do you think best to do, let my customers get their honey somewhere else or should I send for some honey to supply them?

4. I want to build a honey house. About how big should it be to run about 100 colonies? Where can I get some ideas about this?

WISCONSIN.

Answer—1. You can run some 500 to 600 colonies, if you use modern ways.

2. You must run several apiaries. You may easily take care of five.

3. If you can find good honey to buy, it will be better for you to take care of your customers, by buying what you need in order to have some on hand all the time.

4. The size of a honey house depends not only on the number of colonies you have, but also on what you wish to do in this honey house. You may want to manufacture your own hives and put up your honey for sale at retail and in this way you may need a much larger house. You may also want to put your bees in a cellar for winter and in that case you may find it advisable to build a cellar under your honey house. So you see that it would be quite a task to give you advice for the building of a honey house. If you just want to extract your honey and not put up any honey storage rooms, a small building will be quite sufficient.

RENDERING BEESWAX

Excuse me, but how do you clarify beeswax? I have a bushel basket full that is very dirty. The worst dirt is some that hangs to the underside of the wax as it cools off in the water that it was cooked in. Please tell me how. MISSOURI.

Answer—To clarify beeswax, you should melt it with plenty of water, but not let the water whip it into foam. Then keep it warm a long time in a vessel above the water. It will settle slowly. That is the only requirement for it to separate fully from the water. The more slowly it will settle, the cleaner it will be.

A Market for Bees in China

F. H. Fullerton
British Columbia

If present experiments are successful, Canadian bee raisers may possibly look forward to a good market for live bees in China. This is based on the report of Grover Reidel to A. W. Finlay on the occasion of his second shipment of bees from Canada to China.

In 1923 Mr. Riedel made a trip to Shanghai, when he took with him bees from his apiaries in Alberta. Although nearly half the bees died and a large number failed to succeed in China, this very first shipment was on the whole more or less of a success. The second shipment has now been made to the vicinity of Canton, where the climate is warmer.

The bees were stored in refrigerator compartments of the ship with a temperature of 45 degrees, where they quieted down and clustered.

The difficulty encountered in the new country is the great Chinese wasp, an insect two and a half to three inches long, which attacks weak colonies, killing and chewing up the victims. Possibly the bees will learn to handle this new enemy in time.

A New Bulletin

Bulletin 387 of the Illinois Experiment Station is of more than usual interest to the beekeeper. "How to Make Honey Cream," by P. H. Tracy, is the title. Honey cream is a mixture of high-test sweet cream and extracted honey, developed at the University of Illinois creamery. Honey cream has a firmer texture than honey and is more convenient to serve. Since it contains a large proportion of butterfat, no butter is needed with it when used as a spread.

Honey cream is a perishable product, but when stored at a temperature of 40 degrees or lower it can be kept for about two weeks. At room temperature the butterfat will separate from the honey and become tallowy in a few days.

Since this new product offers an outlet for honey in a new direction, beekeepers will do well to secure copies of this bulletin and place them in the hands of local creameries, ice cream manufacturers and others interested in marketing high class dairy products.

Address Experiment Station, Urbana, Illinois, and ask for Bulletin No. 387 by P. H. Tracy.

An Independent Living

Here is a picture of my bee yard. There are eighty to ninety colonies, which produce a large crop of honey each year. We also raise berries and fruit of all kinds. We have four and one-fourth acres of ground one-half mile from the city. But with the help of the bees we gather a crop of fruit each year, because they do a good job of pollenizing the bloom. We have a large acreage of sweet clover which produces nice honey, and we have never yet been able to supply the demand.

Ed W. Austin, Indiana.

In Regard to "Leaving Those Packages Alone"

(Continued from page 50)

to feel queenless, but I did not do so. I shall try further along this line in February or March if I can get the queens and packages, and report later.

I thought it best not to delay this report, as it may be the means of saving losses to others. I do not mean to say that I am positively on solid ground, but the indications point that way.

I agree with Mr. Hawkins in his article in its entirety, especially so where he says it is not necessary to leave all the candy in the cages when introducing queens direct from the shipping cage, but I would warn that the queen should thoroughly receive the odor of the bees to which she is being introduced before she is released. I regard this as of considerable importance.

Advanced Methods of Queen-Rearing

(Continued from page 51)

lay directly in the queen-cell. I lacked the experience necessary to make the method succeed. During the years that have passed since those experiments I have tried various plans with varying success, which I will not take the space to describe here more than to state that last season very satisfactory progress was made and I have high hopes that we shall be able to abolish grafting and that we shall **be able to get the queen to lay directly in the queen-cells in a manner that will be practical for all who wish to use it.** When the system has been perfected it will be given to the general public.

As stated, to rear the best queens we should endeavor to give the growing larva all the food possible, but when we use the grafting method we actually take food away from it, or rather take it away from its food, which amounts to the same thing. This too when the larva is at its most tender age and should not receive such rough treatment as it gets from being lifted out of its cosy bed of the richest and best of food and then being placed in a dry, chilly cell with no food at all, or, may be what is worse, given some bee milk that is not suitable and which the bees remove as quickly as they can.

The whole process is unnatural, and the wonder is that we can rear as good queens as we do. Some state that when they prime the cells with bee milk that has been thinned to the right consistency the bees do not remove it. I question this and believe if they would carefully watch the bees immediately after giving them the larvæ they would see that the food put into the cells is at once removed. If the bees remove it, it must be unsuitable and may actually injure the larvæ.

Others even dilute the bee milk with saliva. It is known that in even the most healthy human mouth there are thousands of germs, so can you believe the bees, which are known to be so particular in such matters, would tolerate such food? Never.

In my experiments I have tried double grafting. By this method we graft cells in the regular way. After about forty-eight hours the larva is carefully lifted out and a larva only twenty-four hours old is carefully placed in the center of the large bed of bee milk. This should be a fine system, for the milk is just as the bees put it there and we take such pains that the young larva is placed in just right.

Results: Very unsatisfactory. Many larvæ are taken out and those that are accepted seem to be taken under protest, for part of the food is removed and in some cases a hole is made clear to the bottom of the cell. In some that are accepted it can be seen that a little very thin bee milk is placed on top of the older milk. **As far as I can see, the food that was placed in the cell first was of no value.**

Where IS the Money for Your Honey?

(Continued from page 53)

period, are able to buy the surplus at the low price and hold it until the demand returns, which it invariably does within a year or two.

So in this country there is no pressure to cut prices badly to the consumer, and though the producer may have to sell at low prices to obtain money to carry on, his market is not spoiled for the next season.

In America the production is so greatly in excess of any possible demand by most of the people of the country that prices have been cut to the bone. How can you induce customers who cannot afford sugar at 4 cents to buy honey at 10 cents, or whatever it is?

The extreme idiocy of the present times appears to me to be the tendency of various governments to remedy matters by restrictions on international trade. As if that would increase the purchasing power of the community and help producers of honey and other things to a remunerative market!

Honey-Raisin-Nut Sandwich

1 cup raisins
⅛ teaspoon salt
3 tablespoons honey
¼ cup nuts
1½ tablespoons lemon juice
1 tablespoon mayonnaise

Chop raisins and nuts, combine all. Spread on thin buttered slices of either brown or white bread.

C. J. Oldenburg, Minnesota.

Meetings and Events

(Continued from page 45)

Nebraska State Fair Winners

At the State Fair in September the following beekeepers were winners of first prizes for the different classes mentioned:

Best one-frame golden nuclei, Wright Brothers, Smithville, Mo.; best one-frame nuclei, three-banded, L. M. Gates, Lincoln; best two one-frame nuclei, sweepstakes, L. M. Gates, Lincoln; best case comb honey, Everett Rairdon, Havensville, Kansas; best case one-pound bottles of white honey, H. C. Wittman, Lincoln; best case one-pound bottles amber honey, Vic Schroeder, Lincoln; best case one-pound bottles of creamed honey, Harry E. Palmer, Bradshaw; best white extracting comb, Wright Brothers, Smithville, Mo.; honey vinegar, Vic Schroeder, Lincoln; empty Hoffman comb, Wright Brothers, Smithville, Mo.; refined yellow beeswax, Harry E. Palmer, Bradshaw; best uses of beeswax, H. C. Wittman, Lincoln; best honey plants, H. C. Wittman, Lincoln; best uses of honey, Charles Warga, Plattsmouth; best display comb and bulk comb honey, Wright Brothers, Smithville, Mo.; best honey in marketable shape, Charles Warga, Plattsmouth; best display, Harry E. Palmer, Bradshaw.

Don B. Whelan, Secretary,
Nebraska Association.

New Louisiana Officers

At a recent meeting of the Louisiana State Beekeepers' Association the following officers were elected:

President—Jes. Dalton, Kenner.

Vice-President—Mrs. M. Stevenson, Westwego.

Secretary-Treasurer—H. H. Bordelon, Marksville.

An executive committee was appointed to drum up members and handle affairs proposed by the office. This committe is composed of the officers and the retiring president of the Louisiana Honey Producers' Association, Mr. George W. Bohne.

The meeting was attended by James I. Hambleton of Washington, Drs. Rosawald and Whitcomb of Baton Rouge, and other prominent officials. Rain interfered with the heavy attendance. Mr. Hambleton showed his bee picture reel in the evening after a delightful barbecue banquet. A resolution was adopted that the association go on record as opposed this time to the enforcement of certification of honey.

The association went on record to thank Mr. Hambleton for changing the U. S. grading rules as they applied to color, endorsing his changes unanimously.

Crop and Market Report

Compiled by M. G. Dadant

For our February crop and market report, we asked our correspondents to answer the following questions:

1. What per cent of the 1932 honey is still in producers' hands?
2. Will it all move by spring?
3. How is the jobbing demand?
4. What can you get jobbing for honey—white___, amber___, F. O. B. your station?

Per Cent of Honey on Hand

There is, I believe, a greater variation in the amount of honey left on hand by producers than there has been in many years past. By that I mean that many producers have completely sold out and are buying honey, whereas others are having difficulty in moving any of their crop and have a large percentage of it left. However, as a general rule, we believe that the general sections which have the least on hand are the New England States, 25 per cent; Atlantic seaboard states, 10 per cent; southern states, 10 to 15 per cent; central west, 25 per cent; plains region, 15 to 25 per cent, and California, 10 to 15 per cent. This is as a general rule, of course, there being many beekeepers in these sections that have still large quantities on hand. The sections which show the largest quantities are Florida, 90 per cent; Texas, 50 per cent; intermountain states, 30 to 50 per cent; northwest states, 30 to 50 per cent.

We should not fail to include the Canadian provinces, which will be practically sold out. The demand seems extremely good both locally and for export, so that there is a lot of encouragement in all the Canadian provinces.

As stated above, there is a wide variation. For instance, in Illinois, Michigan and Minnesota some producers have moved very little of their honey, whereas others are completely sold out and are buying to supply their needs. The very low price at which honey in retail quantities is being furnished in many cases is stimulating the demand and beekeepers are finding themselves with repeat orders that they have to find honey to fill.

Will All Honey Move?

There is considerable doubt as to whether all of the present crop will move under the conditions as they now exist. There is a general agreement, however, that should conditions break better during the early spring, there would be no difficulty in getting sale for the balance of the honey. In most cases the reporters state that their honey will move before a new crop comes. Some exceptions are particularly parts of Vermont, Florida, Minnesota, some sections of South Dakota, Texas and the intermountain territory.

Jobbing Demand

Although the jobbing demand is very poor and has been all through the season, there is some intimation that the demand has improved considerably during the interval since the holidays. This is particularly reported from California, where much of the export demand materializes, and also from some of the larger eastern cities. Honey is now practically down to a point where it can compete favorably with sugar, and this in many instances is leading some of the large users of honey to take honey instead of sugar in their manufacture.

It is fair to say, however, that had not the beekeepers been on the alert and done a lot of their distributing of honey themselves this year, there most certainly would have been a glutting of the market if the jobbing demand had to be depended upon. Many carload shippers in the past in the central and western states have become retail distributors this year and disposed of their crop without the help of any jobbing agency, much to their own satisfaction, since some of their neighbors are still holding car lots and waiting for a jobbing demand to materialize.

Jobbing Prices

The jobbing prices vary a whole lot in different sections of the country. Generally, however, the eastern states quote a jobbing price of about 6 cents on white honey and 4 cents on amber. This dropped to 5 cents for white and 4 cents for amber in the South. In the central states the jobbing demand will be from 4 to 5 cents on white and 3 to 4 cents on amber, although there are a number of quotations on white from 5½ to 6 cents, and amber has been yielding in some instances 5 cents as a delivered price.

In the western intermountain sections we have learned of lots being turned down at a price of 4 cents F. O. B. the producers' shipping point. Other reports are that white is selling from 4 to 4½ cents, with the amber about 3½ to 4½ cents.

In general, anyone, we believe, who is taking less than 4 cents for his white honey is taking too little and anyone who is asking more than 5 cents in carload lot is asking probably too much.

Summary

All in all, we do not feel discouraged over the conditions of the honey market and the amount of honey which will be left on hand for the new season. A lot of new outlets for honey have been made and no doubt these will be wanting honey another season even though the conditions get considerably better.

The BEEKEEPER'S EXCHANGE

Copy for this department must reach us not later than the fifteenth of each month preceding date of issue. If intended for classified department, it should be so stated when advertisement is sent.

Rates of advertising in this classified department are seven cents per word, including name and address. Minimum ad, ten words.

As a measure of precaution to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

Advertisers offering used equipment or bees on combs must guarantee them free from disease, or state exact condition, or furnish certificate of inspection from authorized inspector. Conditions should be stated to insure that buyer is fully informed.

BEES AND QUEENS

CAUCASIANS FOR 1933. Get our new low prices on bees and queens. They will save you money. Our stock is the best obtainable. Bolling Bee Co., Bolling, Ala.

MIDDLE TENNESSEE APIARIES Italian Queens, 60c each. Joe B. Tate, 1029 Lischey Ave., Nashville, Tenn.

CALIFORNIA package bees, superior Italian queens. Largest, also most northern, breeder in the West. Less express charges. New low prices. J. E. Wing, Cottonwood, Calif.

PACKAGE bees and queens for the eastern sections. Two-pound packages a specialty. Twenty-four-hour-old grafted queens. No brood diseases. Safe arrival guaranteed. L. L. Ferebee, Pineland, S. C.

THREE-BANDED Italian queens. Gentle and thrifty; as good as can be raised. Untested, 50c each; over six, 45c each. Jul. Buegeler, Alice, Texas.

GOLDEN Italian queens and bees for 1933, ones that are guaranteed to please you. Write for prices. E. F. Day, Honoraville, Ala.

LOOK for Latham's queen advertisement in April number.

ITALIAN bees and queens, two- and three-pound packages with young laying queens for early spring delivery. Write your needs. Service, satisfaction. Honey Bee Apiaries, Sandwich, Ill.

QUEENS—Very best Italians, 50c. Package bees at competitive prices. Will trade for white honey. Homer W. Richard, 1411 Champnolle, El Dorado, Ark.

SMITH'S Superior bees and queens at very low prices. Write for information. N. B. Smith & Co., Calhoun, Ala.

PACKAGE bees for 1933. Choice tested Italian queens in each package. Prices as follows: 2-lb. pkg. with queen, $1.30 each; 3-lb. pkg. with queen, $1.75 each. I guarantee safe delivery and free from disease. John St. Romain, Marksville, La.

HONEY FOR SALE

HONEY FOR SALE—Any kind, any quantity. The John G. Paton Company, 230 Park Avenue, New York.

FOR SALE—White clover honey in 60-pound cans. None finer. Satisfaction guaranteed. J. F. Moore, Tiffin, Ohio.

NEW CROP shallow frame comb honey, also section honey; nice white stock, securely packed, available for shipment now. Colorado Honey Prod. Ass'n, Denver, Colo.

HONEY FOR SALE—Keep your customers supplied with honey. We can furnish white and light amber honey at attractive prices. Packed in 60-lb., 10-lb. or 5-lb. tins. Dadant & Sons, Hamilton, Ill.

FOR SALE—Northern white, extracted and comb honey. M. W. Cousineau, Moorhead, Minn.

PALMETTO Mangrove or amber honey in barrels. Sample 6c. Peter W. Sowinski, Ft. Pierce, Fla.

NEW crop honey. Choice sweet clover extracted. Thomas Atkinson, R. 5, Omaha, Neb.

WHITE CLOVER honey, extracted, comb and chunk. One-pound sample 15c in stamps. F. W. Summerfield, Grand Rapids, Ohio.

HONEY for sale from clovers and fall flowers. New cans and cases. Can to carload. Samples free. W. S. Earls & Son, New Canton, Ill.

COMB and extracted in most any form wanted. State your wants. H. G. Quirin, Bellevue, Ohio.

AMBER and light amber, case or ton. E. S. Miller, Valparaiso, Ind.

TUPELO honey; will not granulate. Shipped in any quantity. Anthony Bros.' Honey Co., Apalachicola, Fla.

HONEY—We sell the best. Comb in carriers of eight cases each; extracted, basswood, buckwheat, sweet clover, white clover and light amber. A. I. Root Co. of Chicago, 224 West Huron St., Chicago, Illinois.

FANCY white clover comb and extracted, lower prices. F. J. Smith, Castalia, Ohio.

CLOVER mixed flowers, $5.75 per case. Sample 15c. Sylvester Legat, Spring Valley, Illinois.

BASSWOOD HONEY—$3.00 per 60-lb. can. Henry Price, Elizabeth, Illinois.

FOR SALE—White clover comb. C. Holm, Genoa, Illinois.

BUCKWHEAT comb honey for sale. Special low prices on carrier lots. Noel J. Loucks, Springboro, Pa.

FOR SALE—600 cases extracted honey; light amber and No. 1 light amber. Write for samples and prices. C. I. Graham, Colusa, Calif.

HAVE you dropped your worries and forgotten your troubles by cancelling all your debts both ways? Coming also? Are you sure? O. K. Then lets go ahead and make some more, but a little more careful than 1928 to 1930, when we all thought values would not decline. You know we always carry the world's finest maple syrup and maple products, and honey also, in any size container you want, and at competitive prices, so you can compete with all everywhere. Are you on? Griswold Honey Co., Madison, Ohio.

SWEET CLOVER comb honey. Melvin Green, Gordon, Nebr.

FINEST quality white and sweet clover honey, new 60-lb. cans; 120 lbs., $6.00. Martin Carsmoe, Ruthven, Iowa.

MICHIGAN white clover-basswood honey of finest quality in new 60-lb. cans. Orval W. Dilley, Grand Ledge, Mich.

CLOVER HONEY in 60-lb. cans. Roy Littlefield, Exira, Iowa.

FOR SALE—Nebraska sweet clover honey. Single case, two sixties, per pound, 7½c; five to ten cases, per pound, 6c; fifty or more cases, per pound, 5c. F. O. B. Albion, Neb. Address Jensens Apiaries, Crawford, Miss.

HOWDY'S HONEY—White extracted, from central and northern Michigan. Also fancy white comb. Howard Potter, Ithaca, Mich.

BULK comb and clover extracted honey, 5's and 60's. D. H. Morris, Swanton, O.

FOR SALE—Five tons white comb honey, wrapped and unwrapped. Fancy at $2.25 per case at our place. Quantity lots, 10 per cent discount. N. B. Querin & Son, R. 4, Bellevue, Ohio.

HONEY AND BEESWAX WANTED

WANTED—A car or less quantity of white honey in 60-lb. cans. Mail sample and quote lowest cash price for same. J. S. Bulkley, 816 Hazel St., Birmingham, Mich.

WANTED—Car lots honey; also beeswax, any quantity. Mail samples, state quantity and price. Hamilton, Wallace & Bryant, Los Angeles.

CARLOADS OR LESS—All grades extracted honey; also comb honey. Mail samples and delivered prices. C. W. Aeppler Company, Oconomowoc, Wis.

WANTED—Honey, car lots and less. Send Samples with lowest delivered prices. A. J. Schultz, Ripon, Wis.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5 cents a pound for wax rendering. Fred W. Muth Co., 204 Walnut St., Cincinnati, Ohio.

FOR SALE

BEES, honey, beekeepers' supplies. Money-saving prices. Crenshaw County Apiaries, Rutledge, Ala.

VERY profitable bee business for sale in Canada. Sacrifice price. Address Box S, American Bee Journal.

FOR SALE OR TRADE for white honey—40 shallow extracting supers with combs. No disease. Edward Klein, Gurnee, Ill.

FOR SALE—300 stands of bees. Address Kuster, Wheatland, Wyo.

ONE Root uncapping machine, steam boiler, oil heater, used very little. $15.00 cash or would exchange for table saw of equal value. No disease. A. A. Augenstein, R. 2, Dakota, Ill.

SUPPLIES

BEST QUALITY bee supplies, attractive prices, prompt shipment. Illustrated catalog on request. We take beeswax in trade for bee supplies. The Colorado Honey Producers' Association, Denver, Colo.

PORTER BEE ESCAPES save honey, money, avoid stings; faster most efficient. Sample 15c. R. & E. C. Porter, Lewistown, Ill.

FOR SALE—Queen mailing cages. Material, workmanship and service all guaranteed. Write for quantity prices. Hamilton Bee Supply Co., Almont, Mich.

FOR SALE—Comb foundation. Note these prices on 20-lb. lots: Medium brood, 46c; thin section, 53c. Can also furnish wired foundation. Wax worked at lowest rates. E. S. Robinson, Mayville, N. Y.

WANTED

WANTED—Bees and equipment. Minnesota or Dakotas. Must be bargain. Box 105, Dwight, North Dakota.

YOUNG MAN (does not smoke, drink nor chew), experienced with small apiary, wants job as helper for coming season. John M. Schofield, Paxton, Ill.

WANTED—One experienced queen breeder, and one package man with experience in shipping and receiving, also capable of assuming management of branch business if necessary. Good propositions for the right parties. Give full particulars and references in first letter. York Bee Company, Jesup, Ga.

WANTED—A large sized used extractor. Will sell nearly new Root two-frame cheap. R. Piechowski, Red Granite, Wis.

WANTED—Commercial honey outfit or part interest. Box 42, Donna, Texas.

WANTED—Four hundred or more colonies of bees on shares, or buy on contract. Eugene F. Gordon, Boulder, Colo.

WILL BUY several hundred colonies if priced right. Distance immaterial. Edward Klein, Gurnee, Ill.

ESTABLISHED Bee and chicken business, north of Kansas City, for southeastern Kansas county seat town business property ($12,000) clear. Address American Bee Journal.

FOR RENT on shares—300 to 450 colonies in new ten-frame equipment for extracted and cut comb honey, near Albion, in Boone County, Nebr. Only parties thoroughly experienced and responsible need answer this advertisement. Jensen's Apiaries, Crawford, Miss.

MISCELLANEOUS

BEEKEEPERS—Improve sources of nectar by planting vitex trees or seed. Two-year-old trees, 40c; one-year-old trees, 25c. New tested seed at $1.00 per ounce. All prepaid. Joe Stallsmith, Galena, Kans.

INCREASE honey crop two-fifths. Lhommedieu, Colo, Iowa.

PLANS FOR POULTRY HOUSES — All styles; 150 illustrations. Tells you the type to build for your particular locality. Secret of getting winter eggs, and copy of "Inland." Send 25c. Inland Poultry Journal, 523 Holliday Bldg., Indianapolis, Ind.

THE BEE WORLD—The leading bee journal in Great Britain and the only international bee review in existence. Specializes in the world's news in both science and practice of apiculture. Specimen copy, post free, 12 cents stamps. Membership of the Club, including subscription to the paper, 10/6. The Apis Club, Brockhill, London Road, Camberley, Surrey, England.

BRIGHT ITALIAN PACKAGES & QUEENS

from our superior strain; the result of nearly twenty years selecting and breeding. To induce early booking of orders, we offer to book to March 1 two-pound packages with queen for $1.98 each and untested queens 60c each, any number. Orders booked for 20 per cent deposit. Shipped when you want them.

HAILEY'S APIARIES
Hughes Springs, Texas

PACKAGE BEES & YOUNG LAYING QUEENS FOR 1933

Three-banded Italians. Our circular describing this stock. How to build up packages fast, and bargain prices on 4-lb., 3-lb., 2-lb. packages. Ask for circular.

Gooch Apiaries, Farmersville, Texas

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Write us for prices on the most complete equipment and attractive packages ever offered to Beekeepers.

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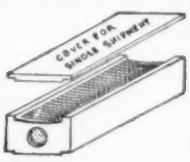

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Send for circular or samples.

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Honey and Pabst-ett Prove 1932 Winners

MISS ANNETTE SNAPPER

of Pabst Corporation; one of honey's most loyal boosters, uses honey in many ways.

INSTITUTE EXHIBIT AT INDIANA STATE FAIR

PERHAPS no one co-operator has boosted honey in as many ways as the Pabst Corporation. In connection with Pabst-ett spread delicious honey combinations have been suggested to thousands. Grocers throughout the country have been induced to make counter displays featuring honey along with Pabst products. Chefs in large hotels and institutions have received this information. By Institute help honey has been supplied for actual sampling with Pabst-ett and in turn Pabst has supplied his products for similar displays put on by Institute workers. At one exhibit over 5000 recipes were given grocers and the public, featuring honey and Pabst products. Such wonderful boosts for honey without cost could only be assured through an ethical contact such as the Institute. Be sure to write Miss Snapper, care of Pabst, Milwaukee, for her honey and cheese recipes. It will help the Institute if you express your appreciation of their wonderful help for honey.

Is this help worth your co-operation? Many honey producers do appreciate it and have shown evidence by sending cash to the Institute to help carry on this wonderful work for honey. For those who cannot send money, send honey to the Institute honey receiver nearest you. The honey will be sold and the money sent to the Institute. Honey receivers are named on page 66 in this issue.

AMERICAN HONEY INSTITUTE

417 North Few Street **Madison, Wisconsin**

(This Space Donated by Dadant & Sons)

WE ARE STILL IN THE GAME

and can supply anything from a queen to four carloads of bees in full colonies at prices to suit the times. . . .

Write us your wants.

J. G. PUETT & SON, Hahira, Ga.

Caucasians

Free descriptive circular about these wonderful bees — Send for copy.

Caucasian Bee Company
Repton, Alabama

The POSTSCRIPT

GOSSIP ABOUT THE OFFICE IN THE MAKING OF THE MAGAZINE

"Dick" Blood, an ex-service man who has some bees down in Georgia, takes a crack at the top entrance. He says that he has tried the top entrance, the middle entrance and even a glass bottom entrance. He found them to be fine as long as the bees were left alone, but when the top of the hive was removed the fun began. "Everything from the alphabet to underwear was full of bees." The way the bees invaded his unionalls, crawled under his leggings and sat on his ankles made him strong for regulation equipment.

As long as the entrance remains open as usual, the bees go about their business with little attention to the fact that the hive is torn down. Take away the entrance and you have something different with which to deal.

These top entrances, however, have aroused a large amount of interest on the part of readers. Beekeepers like to try something new, even if it is not practical for everyday use.

— : —

Another letter from Florida, from C. H. Smith, of Englewood, this time. In commenting on the items in the November postscript about Florida, he says that he could name about forty plants which would bloom between the May and September dates mentioned by Doctor Horton. The mixture he describes as almost uneatable. He says that he went the Doctor one better and ran from May 28 until December 18 when he was taking off the concoction.

Perhaps Horton was fortunate that his bees did not store much honey during that period. Beekeepers in the North, who get honey from only two or three major sources, all of which produce good honey, have little idea of the problem where poor quality from many plants is likely to be mixed with the good honey.

— : —

A. William Bowman, of Leross, Saskatchewan, writes to tell me more about the alpha clover. He says that it is easy to cross sweet clover with alfalfa and that he has done so several times. The resulting hybrid, however, is always sterile and will produce no seed. The alpha clover resembles alfalfa in the large number of stems that grow from the root. In other respects it is like common sweet clover. A fine-stemmed sweet clover would be a decided acquisition to American agriculture, as it would make so much better hay than the common kind. Mr. Bowman has a small amount of seed which he can spare at 25 cents per ounce. A small sample will soon enable the experimenter to demonstrate whether it is of value to him.

— : —

From O. G. Borton we learn that there have been two years of short honey crop in southern South Dakota. He writes that after being accustomed to an average production of 225 pounds it is tough to come down to two years of near failure. Borton got a crop by moving his bees to the northeastern part of the state, but the long move and operating so far from home made it expensive. Beekeepers are always optimistic, as is evidenced by the fact that he is getting everything ready for a big crop next season. You can't down that kind of a man.

— : —

A correspondence course has proved to be very helpful to many beginners with bees. Several agricultural colleges now offer such courses at trifling cost. Professor Paddock's course at Iowa State College at Ames has a fee which just about equals the price of the two textbooks which are included. The student thus secures the advantage of the instruction practically free.

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E. L. Sechrist writes from California to say that fruit growers do attempt to control both blight and insects with one application of spray. He tells of extensive spraying of that kind in pear orchards the past year, much to the concern of the beekeepers who provide bees for pollination.

The significant part of his letter lies in the statement that there was greater blight infection in the sprayed than in the unsprayed trees. This indicates that Doctor Rosen's proposal to control blight by a blossom spray may not work so well as anticipated.

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Earl Alexander writes from Ohio to say that the fact that so many beekeepers feed sugar to their bees to provide winter stores is responsible for much of the suspicion of honey on the part of the public. He states that it is poor economy to sell honey to buy sugar, and very poor advertising for honey.

— : —

I seem to have stirred up something in the discussion of Caucasians vs. Italians. One correspondent asks me frankly what I would do if my experience was similar to his (describing some unpleasant experiences). Well, in that case, I would stick to Italians. The fact is that personally I have never yet been entirely convinced that there was any better bee, although I have been impressed with some of the enthusiastic boosters for the other races.

— : —

Doctor Watson is optimistic when he says (page 49) that a new bee is in the offing. If natural selection has not resulted in any important change in three thousand years, as he says, won't it take more than twenty-five years for the breeder to show important change? Watson has already accomplished the seemingly impossible in his controlled mating, so we will await with interest his further activity, although somewhat skeptical as to the rapidity of the accomplishment.

— : —

The article by R. B. Manley on page 52 is interesting in that he places honey in the luxury class. Perhaps it will never be a staple, but in this country there are now a few men with extensive apiaries who contend that they can sell honey in competition with sugar and still make a profit. The writer never could do it, and but few beekeepers can. The big producer, however, bids fair to be the one who will set the price in future. Large volume of production at low cost per unit, long the goal of industry, has not proved a safe guide for agriculture. The producer who first produces his own living and then sells the surplus is the one who remains in secure position.

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John Fruechte, on page 56, says that it is not as easy to raise queens as it looks. Queen-rearing is no job for the novice, although it is the most fascinating branch of beekeeping. I am puzzled to figure out how present-day queen breeders can raise queens for sale at the prices which have recently been advertised.

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We have some very practical men among our apiary inspectors, as may be judged by that article on transferring diseased colonies, written by Carr, on page 60.

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E. M. Cole writes to the effect that Corkin's work on wintering has vindicated the opinions of the old-timers, Doolittle and Charles Dadant, while leaving some doubt as to the value of investigations of some later investigators. We have not learned all there is to know about wintering yet.

Frank C. Pellett.

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The Oldest Bee Journal in the English Language

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